



# *The Riddle of "Yellow Rain"*





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## A Note from the Staff

This is it. We are now in a life and death quest for funds. The Southeast Asia Resource Center must raise \$15,000 to remain open for the rest of this year and at least \$50,000 to stay open next year. We have begun a multi-pronged campaign, combining direct appeals to our supporters, fund-raising events, and a coordinated search for grants. You will be receiving appeals for contributions soon. Please contact us if any of you are interested in sponsoring a fundraiser.

This issue of the *Chronicle* could easily have been twice as long as it is, but our budget won't support the extra printing and mailing costs of a large issue. An article outlining the recent history of the Hmong in Laos which was slated for this issue will be carried in a Laos update issue later this year. Similarly, what was intended to be a lengthy review essay of Grant Evans' *The Yellow Rain-makers* had to be drastically curtailed to meet space limitations.

## The Resource Center Staff

Staff members for the Berkeley office are Linda Golley, Joel Rocamora, and Martha Winnacker. Research assistance is provided by Jane Castellanos, Diana Elwyn, Fred Goss, Judy Henchy, Glenda Pawsey, Steve Heffernan, Bruce Boer, and Gary Grescher. Staff members for the East Coast office are Jacqui Chagnon, Audrey King, Don Luce, and Roger Rumpf.

## The Southeast Asia Resource Center

Formerly called the Indochina Resource Center, the SRC is a major non-governmental source of information on current developments in the countries of Southeast Asia, and on the U.S. involvement there. The Center follows and interprets events in Vietnam, Laos and Kampuchea, as well as in Thailand, Malaysia, Indonesia, and the Philippines. This research and analysis continues in the tradition of the Indochina Resource Center, which played a key role from 1971 to 1975 as one of the sources of accurate information for the anti-war movement's successful effort to cut U.S. aid to the Thieu regime.

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Roger Rumpf (left) discusses "yellow rain" experiences with Xua Chang Her (center) and Nao Leu (right) during an investigation in Ban Done, Laos.

## About This Issue

It is not condoning crime to ask for evidence.

One of the problems with the "innocent until proved guilty" approach to law is that it is sometimes hard to make the distinction between condoning a crime and ensuring that an innocent person is not condemned for it. It is, after all, one of humanity's finer characteristics that individuals and communities are outraged when they learn that hurt has been deliberately inflicted, and it is easy to jump from outrage to punishment without being careful enough about evidence.

So it is with "yellow rain," the chemical or biological agent which the U.S. government alleges the government of the Lao Peoples Democratic Republic is dropping on minority Hmong tribespeople. Thousands of Hmong have left Laos since 1975, many because they participated in an unsuccessful armed insurgency against the socialist government. By the time they reached Thailand they were often sick, malnourished, and suffering from exposure. Particularly since 1979, when the Hmong resistance was finally routed, some of them have told stories of strange powders, gases, or drops which have apparently fallen from planes or which have mysteriously appeared on the ground, causing sickness

and death. It is these stories which have provided the primary basis for charges that the Lao government is using chemical weapons. The United States has leveled similar charges against Vietnamese forces in Kampuchea and Soviet forces in Afghanistan, but by far the bulk of its evidence has come from Hmong in Thailand. Anyone who talks to these refugees can see that they have suffered severe hardships, and it is hard to doubt their accounts of what they have experienced. Believing their stories, however, does not require that we accept chemical warfare as the explanation for what they have endured. On the contrary, it requires a meticulous investigation to find the cause of their suffering and what can be done about it.

The State Department has not undertaken a very thorough quest for the truth. At this time the State Department is paying the salaries of two medical workers employed by the International Rescue Committee to collect testimony on "yellow rain" from Hmong in Thailand. In contrast, there are three U.S. government employees stationed in Bangkok to work full-time on finding out what happened to American servicemen missing-in-action in the Indochina war.

More important than the number of field personnel, however, is the quality of the evidence they have produced and the relationship between the evidence and the American charges against the Lao government. Lt. Col. Denny Lane, former assistant U.S. Army attache at the U.S. Embassy in Bangkok, summed up his conclusions after two years of interviewing Hmong in an interview with the *Asian Wall Street Journal* (July 25, 1983), "There are still a lot of unanswered questions."

The articles in this issue of the *South-east Asia Chronicle* demonstrate that the available evidence has just begun to pose questions rather than provide answers. This issue of the *Chronicle* adds an entirely new dimension to the evidence on "yellow rain" by reporting from inside Laos, where Jacqui Chagnon and Roger Rumpf conducted interviews with Hmong at some of the sites most often named by refugees in Thailand as having been attacked with "chemicals." Chagnon and Rumpf found stories of mysterious substances inside Laos—but no explanations. Chemists Arthur Westing and Lloyd Williams demonstrate some of the gaps in the State Department's case, and suggest that the issue may have taken on an independent life as the justification for developing a new U.S. chemical weapons arsenal. Neither the authors nor the *Chronicle's* editorial staff claim that the evidence we present *proves* the Lao government is not using chemical weapons. We firmly believe that a careful investigation of what is happening in Laos and of the U.S. government's handling of the question is essential before we can draw conclusions.

To a large extent, the Left has been afraid to take up the question of "yellow rain" out of fear that an unsubstantiated challenge to the U.S. charges would appear to condone or excuse the use of chemical weapons. Many of us are still

It is those who are most vociferous in denouncing the Lao government who appear to find chemical warfare acceptable.

coming to terms with our failure to credit the stories of horror which refugees brought out of Pol Pot's Kampuchea. We condemned our own government's use of chemical weapons (Agent Orange and other defoliants and CS gas) in Vietnam, Laos, and Kampuchea, and we will protest any other government's use of such weapons—whether they are



aimed directly at people or at their environment.

Ironically, it is those who are most vociferous in denouncing the Lao government who appear to find chemical warfare acceptable, for it is they who are calling on the United States to develop a new generation of chemical weaponry. Responding to vigorous Reagan Administration lobbying, the Senate voted 50-49 on July 13 to authorize \$130 million for the development and production of a new class of nerve gases. The House rejected a similar bill in June, but a House-Senate conference committee reinstated the bill on August 3. The U.S. government has shown little interest in com-

pensating thousands of Vietnam veterans—not to mention millions of Indochinese people—who suffer severe health problems as a consequence of exposure to Agent Orange.

The issue is extremely serious, not only in moral terms but in international law as well. If the Laotians and their Vietnamese and Soviet allies are shown to be using lethal chemical weapons, they will be in violation of a major international treaty in a way which could jeopardize all future arms control agreements.

There are other possible explanations for the stories the Hmong tell. Most recently, Dr. Matthew Meselson, a

Harvard biochemist, and a group of colleagues have suggested that microscopic photographs of physical samples of "yellow rain" resemble the droppings of bees. While the bee excrement theory is still only a hypothesis, it demonstrates vividly how little we know about natural phenomena in Laos and how much there is to learn before it will be possible to make authoritative statements based on the refugees' reports. Before passing sentence, we need to know whether a crime has been committed and who is responsible for it. We must not be confused into thinking that it is condoning crime to demand conclusive evidence. □

## BOOKNOTES

Grant Evans, *The Yellow Rainmakers: Are Chemical Weapons Being Used in S.E. Asia?* London: Verso Editions, 1983, 202 pp.

A must-read for anyone concerned with the "yellow rain" issue. Australian sociologist Grant Evans has done the most thorough analysis yet of the existing evidence on "yellow rain" and on the context in which it has been generated. The study includes a history of the Hmong Secret Army trained and supplied by the CIA to fight against the Pathet Lao, an examination of specific characteristics of Hmong society and culture which facilitate the rapid spread of rumor, and a careful sifting of evidence gathered from refugees and from physical samples. Among his critical contributions are efforts to crosscheck what refugees relate with other evidence—and in one case with the same person's story a year later. Evans draws illuminating comparisons between the "yellow rain" charges today and charges leveled against the United States for using "germ warfare" in North Korea during the Korean War.

The reader may not agree with Evans' conclusion that there is no "yellow rain," but no one can dispute the claim that Evans has brought a new standard of rigor to the debate over this issue.

Wayne Stier and Mars Cavers, *Wide Eyes in Burma and Thailand: Finding Your Way*. Fairmont, MN: Meru Publishing, 1983, 218 pp., \$10.50.

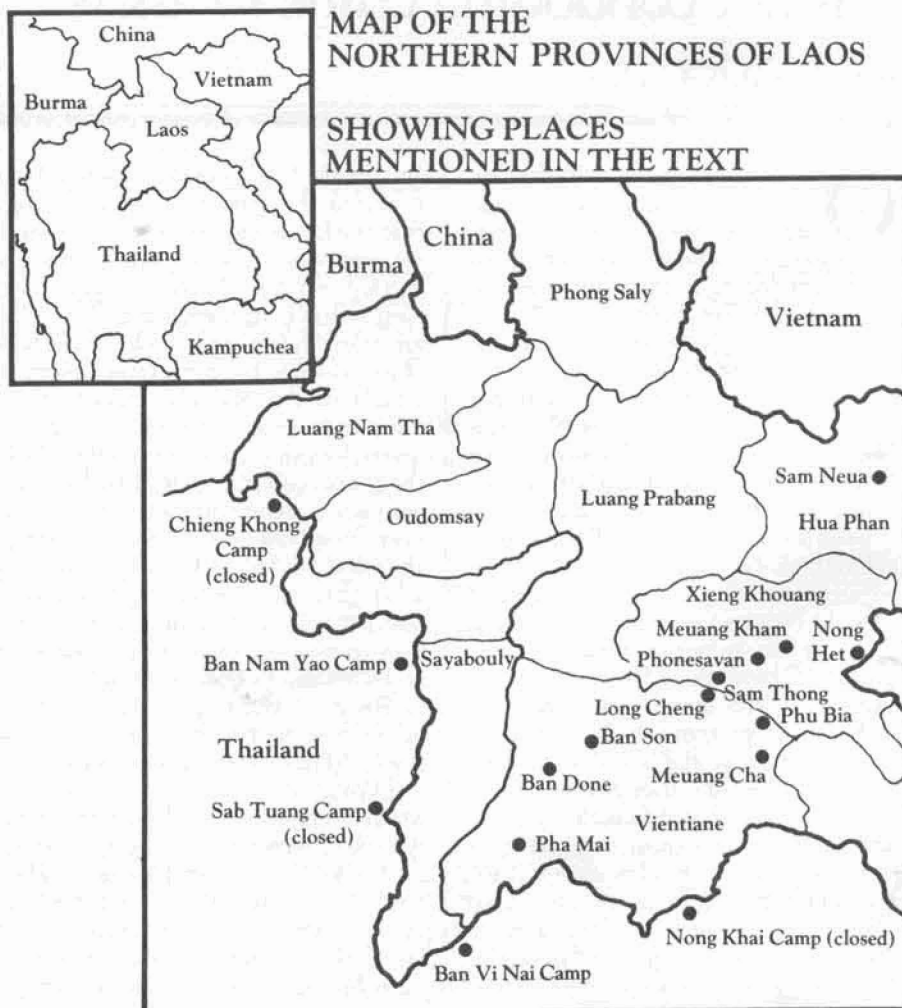
Travelers to Burma and Thailand will find many useful facts, tips, and maps in this user-friendly guide. Its valuable and humorous suggestions are geared to the low-budget traveler willing to delve into the culture and history of the area. We look forward to the second and third books by these authors, on the Malaysia

crescent and Indonesia, to be released by Meru later this year.

Lynda van Devanter, *Home Before Morning*. New York: Beaufort Books, 1983, 320 pp., \$17.95.

The author served as a U.S. Army nurse in a combat zone during the Vietnam War. Her autobiography is a

very readable, very moving account of her transformation from a wide-eyed, young patriot into a Vietnam veteran. She discusses with gratifying frankness the problems of reintegrating into American society and the particular problems faced by women veterans. Welcome home, people!





# Search for "Yellow Rain"

## Evidence from inside Laos suggests that the "yellow rain" investigation has just begun.

Jacqui Chagnon and Roger Rumpf

*It first appeared like fog or smoke and then turned to water. I saw the yellow dew (mok) myself in 1981 and 1982. It was the color on this matchbox (a bright yellow orange.) I do not know where it comes from. I first heard people talking about the yellow poison in 1977. We need some scientific people to tell us what this is, where it comes from and what we can do about it. We in the countryside are very ignorant about such matters.*

His name is Xua Chang Her. He is a Hmong from Pha Mai, a remote mountain village in Vientiane Province, Laos. Though in his mid-fifties, he usually walks to work—over 75 miles in less than three days. Xua Chang Her serves as an elected representative on the Administrative Committee of Vang Vieng District.

At first his "yellow poison" story stunned us. It was the first eyewitness account we found in Laos. His description mirrored "yellow rain" allegations by anti-Lao government Hmong refugees—except on one major point. He did not attribute the source of the chemicals to airplanes, rockets or warfare. Nor did he accuse the governments of Laos, Vietnam or the Soviet Union of spraying the unexplainable substance.

Moreover, Xua Chang Her's story proved to be one of several accounts. Early this year we gathered seven eyewitness "yellow poison" accounts from both Hmong and Lao inside the Lao Peoples Democratic Republic.

**G**assing" stories first emerged in the Western press in 1978. Hmong refugees claimed the socialist Lao Peoples Democratic Republic (LPDR) was exterminating its Hmong population because some had fought with the American CIA during the Indochina War. Since then the United Nations, the United States, Canada, Australia, France, Great Britain and Thailand have investigated allegations of chemical and biological weapons (CBW's), popularly dubbed "yellow rain."

Of these only the United States claims conclusive proof that the U.S.S.R. provides CBW's to Laos for use against its Hmong minority. U.S. officials now cite "Yellow Rain" as a major Soviet violation of two disarmament agreements, raising serious doubt about future negotiations.<sup>1</sup> Pentagon officials also use "yellow rain" as the prime reason to reinstate U.S. production of CBW's. According to one senior military official, "We cannot leave ourselves in a position to be unable to respond to Soviet use" of CBW's. Furthermore, "the use of poison gas could be considered a cheaper substitute for nuclear weapons."<sup>2</sup>

*Jacqui Chagnon and Roger Rumpf traveled in Laos for six weeks early in 1983 during which they visited and interviewed extensively in areas which have been cited as the targets of "yellow rain" attacks. They had previously lived in Laos for three years as field representatives for the American Friends Service Committee. Both are fluent in Lao.*



© Jacqui Chagnon

*Xua Chang Her (left), a Hmong official in Vang Vieng district, Vientiane province, listens to farmer Nao Leu's story of "yellow poison" which killed three of his children.*

Regardless of ongoing scientific and cold-war debates, one cannot ignore several hundred recorded refugee accounts. With these, however, one glaring gap persists: failure to crosscheck refugee "gassing" stories with on-site observations inside Laos. We revisited Laos early in 1983 with hopes of beginning to fill in this enormous hole. We offer no conclusions about whether the LPDR is using lethal chemical weapons. That requires more scientific research and crosschecking of refugee stories by scientists, disarmament supporters, and diplomats—preferably inside Laos.

Yet, what Xua Chang Her and other Laotians told us provides crucial clues for solving the "yellow rain" mystery. Ideally, we hope their stories stimulate all concerned to conduct impartial, international research inside Laos. LPDR officials have told us as well as a diplomat and several scientists that their government would permit such investigation.<sup>3</sup>

Any investigation inside the LPDR, particularly on this issue, automatically faces constraints. Laos, a newly-declared socialist state, is just beginning to recover from 15 years of warfare. It is struggling and nervous. A loosely organized resistance based just across its borders in refugee camps spurs on some political tensions but mostly is a nuisance. Laos' multi-ethnic populace of 3.5 million ranks among the poorest of the

poor. A Lao teacher, for example, earns in one year less than an American teacher makes in a week.<sup>4</sup> One in every four newborns dies before the age of one.<sup>5</sup>

More subtle factors also limit the investigator. Laotians communicate mostly through oral rather than written means. Story-telling is an art. And the main theater is the local marketplace, where truth stretches easily into exaggeration. Besides being melodic, colorful and at times delightfully earthy, the Lao language possesses a vocabulary which is imprecise and technically limited. Discussions about "poisons," for example, can easily bring on a linguistic migraine. There are at least four interchangeable terms: *ya bua*, *ya peet*, *chemie aii peet*, and *chemie ya peet*. So when farmer Kham talks about *ya bua*, does she mean poison in general or strychnine, its more specific connotation. She probably has learned to read and write within the last ten years and has never seen a dictionary. During an interview she would interchange terms such as: *met leuang* meaning yellow spot, drop, pill, tablet, seed, or grain; *mok leuang* meaning yellow dust, powder or fertilizer. The phrase we heard the least was *fawn leuang* (yellow rain). Colors are also perceived differently. Blue can be green; orange can be yellow and on and on.<sup>6</sup>

Discouraging people from telling interviewers what they think they want to hear is another challenge. In Asia it is "polite" to please whomever one is speaking to. Refugees are particularly mindful about pleasing foreigners who might help them get to third countries or obtain privileges. So, after five years of Westerners asking Hmong refugees in Ban Vi Nai camp about "yellow rain," finding where truth ends and pleasing foreigners begins has become increasingly difficult. It is not necessarily malicious, simply polite.<sup>7</sup>

To avoid this predicament, our interviews first solicited information about recent activities, health problems, involvement in resistance forces, general living conditions inside Laos, and for refugees, reasons for leaving. In this way interviewees had every opportunity to raise their "yellow rain" stories—if they had one—without our direct prodding. (See Appendix for questions.)

Before entering Laos we interviewed refugees in two Thai camps, Ban Nam Yao and Ban Vi Nai. In the former we found no "yellow rain" stories among the Hmong, Mien, Tin, and Lao refugees. Neither has the U.S. government any such reports. In Ban Vi Nai, we heard a variety of "yellow rain" allegations. Of the two, Ban Vi Nai is the more politicized. Its Hmong refugee camp leaders, all former officers of the CIA's secret Hmong army, lead the resistance. They usually arrange "yellow rain" interviews. In neither camp did we go through any refugee leaders to find interviewees or translators. We conducted all interviews in Lao with one exception, a Hmong woman.

Inside Laos we faced other limitations. Half of our interviews were private and half were in the presence of local government officials. However, local officials proved valuable sources of information on several occasions. To travel outside the capital of Vientiane, we had to obtain permission and be accompanied by officials.<sup>8</sup>

Finally, we must admit two faults with our investigation. First, we should have interviewed more women, as they are often less politically biased than Hmong men. Second, we did not have enough time to follow up comments about medical questions with medical personnel.

With these preliminaries said, let us see what happens when "Yellow Rain" allegations told to us by Hmong refugees in Ban Vi Nai are crosschecked inside Laos. We begin in Ban Done, Laos.



Left: Faydang Lobliayas, a Hmong leader who fought with the Pathet Lao and now sits on the Lao Supreme People's Council. Right: Vang Pao, CIA-backed leader of Hmong opposition to the Pathet Lao.

Ban Done is the end of the road—or more precisely a rough, wavy dirt track. A trip to Ban Done requires a tough jeep, a strong back and a real desire to go. Half of the 100 kilometers from the Laotian capital of Vientiane is so jarring that it inspired our Lao government guides to joke, "This is how we do the Lao disco."

Tucked into a small valley bordered by jagged cliffs, jungle-covered mountains and the picturesque Tong River, the village of Done, or Ban Done, is typical. It has about 100 families, in this case ethnic Lao, and the main occupation is rice farming. An identical adjacent village, Ban Tha, houses the subdistrict's administrative headquarters. Together the twin villages make up a regional hub for local government, transportation, marketing, and communications. Hmong and other Laotians trek many days to trade produce, rice and meat here or to catch a bus to Vientiane.

Perhaps because it is the oldest town in the area, Laotians often call the subdistrict Ban Done. The official name is Meuang Feuang. Meuang Feuang subdistrict stretches from central Vientiane Province down to the Thai border, a fast five day walk. Its dozens of scattered villages merit not even a dot on most maps. One-quarter of its sparse population of 20,000 are Hmong. Most came to Meuang Feuang after 1960. Their relatives, now refugees in Thailand, led us to Ban Done.

During a two day visit to Ban Vi Nai refugee camp, we heard three versions of "chemical" stories mentioning the Ban Done area. The first Hmong, a current resistance fighter and former CIA secret army soldier, saw "white, yellow, black, blue/green chemicals" come from unseen high-flying planes every day for two years; no one ever died, but many got sick. The second, an elderly Hmong farmer, never saw any "poisons" but knew of 11 people in Ban Done who had died of them; he neither knew where it came from nor associated it with planes or the Vietnamese or Lao governments.

The third account, related by former Hmong resistance fighter Chao Thao, deserves some attention. Chao Thao had lived in Ban Done area from 1977 until 1979. "I moved my family to Ban Vi Nai Camp because I thought the Vietnamese and Lao Deng (Red Lao) were going to arrest me. I was a soldier of Vang Pao." Before 1977 he had been a Hmong resistance fighter in Muang Cha, which we will return to later.

During a lengthy interview about his two years in Ban Done, Chao Thao never mentioned "chemicals" or "yellow rain."





*Minority leaders of Xieng Khouang Province supported the Pathet Lao during the war. Left to right: Sen Thammmavong (Lao Theung), president of the Lao Front for Rebuilding the Country (NLSS); Nao Tu Lo (Hmong), commander of the provincial military; Yong Yia Ya (Hmong), president of the provincial Administrative Committee; Yong Ma Moua (Hmong), vice president of the NLSS; Yia Lo (Hmong), member of the Communist Party Committee and the provincial Administrative Committee; Som Chay (Hmong), head of the provincial police.*

Finally we probed with a direct question about them. "No," he responded, "I never saw any yellow chemicals. I did see three people die from poisons. In Ban Done 50 people became sick. They become drunk and vomited blood. Only Hmong were affected because we live in the mountains and the Vietnamese and Lao live in the lowlands."

Then Chao Thao told how local Hmong officials came to investigate the "chemical" deaths. He remembered the names of two, Giong La Xiong and Xua Chang Her. One month later we met Xua Chang Her, a Hmong district official in Ban Done.

At this point, Chao Thao, perhaps sensing our interest in his "chemical poisons" story, began to elaborate and contradict his earlier version. Now he claimed he saw "a large jet plane spray yellow chemicals in June and December of 1977. It flew very high. It took about two hours for the chemicals to fall to the ground. The chemicals formed a white cloud, but upon reaching the ground it was yellow." Perhaps this was a classic example of "being polite"—saying what he thought we wanted to hear.

But what intrigued us most was his reference to the two Hmong officials in Ban Done. If this was an attack by the Lao government to kill off Hmong people, why would two Hmong officials come to investigate?

One month later we got a chance to cross-check Chao Thao's story. He was correct on some points: Xua Chang Her does exist. And he is a Hmong government official in Ban Done area. Further, he did hear reports of people getting sick from "yellow poisons." However, it was only in October 1982 that he made an official investigation of the poisons—and saw the "yellow dewdrops" himself. On the first night of our Ban Done stay we met Xua Chang Her. He was on his way home to Pha Mai—a site repeatedly listed in U.S. government "yellow rain" reports. By chance he stopped off at Ban Done village for the night.

During the Indochina War, Xua Chang Her was one of many Hmong caught between warring factions. Before the bombing began in 1960, he was the village leader in Long Phot to the

north. In the early 1960s Long Phot's Hmong became politically divided: some supported CIA-backed military leader Vang Pao; others followed the socialist Pathet Lao; the rest, including village leader Her, chose neither. Constantly caught between these power factions, Xua Chang Her led a group of Long Phot Hmong southward—away from the fighting—to form a new village at Pha Mai. At that time, Her said, "Vang Pao was forcing Hmong men to enlist as guerrillas of the CIA's secret Hmong army," he said. "Some joined. But those who said no came with me to Pha Mai."<sup>9</sup>

"The 'yellow poison' is real," he insisted. "I saw it in 1982. Twenty-seven Hmong died from it in the villages of Na Nyao, Mon Tong, Mong Hua, Hoeui Gok Thong. They are all in the Meuang Meun ward, near the Thai border. People with black, bloody diarrhea died in two to three days. Those who only got skin sores (*tum*) did not die. Banana leaves, rice and buffalo died also. We instructed people not to go into this area and to boil their water. That was in October 1982. In 1978 and 1979, I heard rumors about this "yellow poison" making people sick. It was only in 1981 and 1982 that people began to die from it."

Xua Chang Her went on to claim "we know the yellow poison exists, but we don't know where it comes from. I saw it on the leaves. At first, it appears like a fog or smoke and then it turns to dew." When asked if he would take us to those villages, he readily answered yes. "To get there will take two days of walking. No, four days for you."

Notably he related all of this with no hesitation in front of a dozen officials: one Foreign Ministry, one Vientiane Province, two Vang Vieng District, and eight Meuang Feuang subdistrict. The local officials nodded in agreement with his statements.

Unbeknownst to Her, we had heard earlier in the day about "yellow poison" killing 27 Hmong in the same four villages in Meuang Meun. Ten members of the Administrative Committee of Ban Done subdistrict, all ethnic Lao Lum (Lowland Lao), had provided the same details. They added another "yellow poison" incident: this time about ethnic Lao in Meuang Meun lowlands.

In Na Taat, chairman Bounmak explained, 13 Lao Lum died suddenly in early 1982:

They developed black diarrhea with blood and died within two or three days. Villagers claimed "yellow rain" (*fawn leuang*) had caused the deaths. It came from Thailand, they said. (How?) In the wind I guess. They also said that they had to boil their water before drinking it. Otherwise they would get sick and die also. None of us ever saw this. But a doctor Thongbai came from Vientiane to check. He said it was caused by bad chemicals. He told people to keep boiling their water. That's all. No one has died since then in Na Taat.

Thus, during our first day in Ban Done we had met our first eyewitness to "yellow poison" inside Laos. And we had partially crosschecked refugee Chao Thao's account through Xua Chang Her. Both had heard talk about "yellow poisons" in 1978 and 1979, but neither had seen it then. But there are discrepancies between the two: Her made no official investigation in 1978 or 1979, but only in 1981; Her claimed no one died from the "yellow poison" until 1981-82. Most importantly Her, unlike Thao, made no mention of warfare or planes.

We also got an unexpected bonus that first day: the first "yellow rain" account about Lao Lum—and told by Lao Lum socialist officials.

The next morning Xua Chang Her brought us to new Hmong housing across from the small secondary school which eight teenage Hmong attended. We caught two of their fathers, Ger



Thong of Pha Mai and Naw Leu of Nong Pho, as they were about to go off to work on a United Nations agricultural project at Pha Hoi. They too had "yellow rain" stories.<sup>10</sup>

Ger Thong, a Hmong farmer in Pha Mai since 1965 and now a village leader readily seized the occasion:

I saw chemical poisons in Pha Mai first in 1979. The last time was in 1982. Some was black and some was yellow. People act drunk and dizzy when it appears. Some have fever and dysentery and some die immediately. I do not remember the names of everyone. I believe my son and grandson died from it. People vomit blood. If they take opium and eat *mak thon* (a large white edible gourd; *Benincasa hispida*) they get better. Plants like rice, Chinese cabbage, banana leaves and papaya die. It burns like gun powder if you light it and smells like dynamite, an acrid odor (*kieu*). We sometimes put tin roofing on the ground outside our house and the next morning we can see it [the poison]. It remains for two to three days if no rain washes it away. I've never seen it here in the lowlands, only in the mountains where the Hmong live.

Did he ever report these events to government officials? "I reported it to sub-district officials," Ger Thong said. "They wanted me to bring them samples but I was afraid to collect it. It is poisonous. Hmong do not generally tell others about such problems. We just take opium and *mak thon*."

Were resistance forces in the area during those times? "In 1976 and 1977 many people came through Pha Mai on their way to Thai refugee camps. After that (Vang Pao's) resistance fighters came through from Phu Bia mountain. At first they came through our villages but after 1977 they went around us through the forest."

Where did he think this poison chemical comes from? "I don't know. It just appears on the ground." When he saw the poisons did he see any planes? "Planes come and go as usual. Sometimes when we see the chemicals we see planes, but sometimes we don't." Did he ever see the chemicals coming from the planes? "No, never."

Naw Leu, the other Hmong farmer had listened to Ger Thong's account. Then he interrupted to say that he, too, had seen the "yellow waterdrops three or four times last year." Dates and places in his story are confused (as our notes reflect). Nevertheless, some points are worth relating.

Naw Leu saw the yellow waterdrops in two places: near the United Nations pig and cattle-raising project at Pha Hoi (sometimes called Phone Hoi) and on Sam Liam Mountain in the Meuang Hom where he lived before April 1982.

Before we could ask background questions, Naw Leu with great emotion described how three of his children had died last year. He thought their death was caused by the yellow waterdrops:

They were seven, four, and three. They had bloody diarrhea. Before I saw the yellow waterdrops they were well. My seven other children survived. I gave them opium and *mak thon*. If the yellow waterdrops fall on the children they scratch it and their skin becomes soft and mushy (*peuay*). Some people still have rashes and skin sores (*tum*) all over their heads especially children. Some still cough a lot. The Hmong medic in our village looked at the yellow waterdrops but could not determine what it was. I don't know where they come from. They just appear on the ground."

Naw Leu's speech, clothes and hands indicated he had been a hardworking but poor farmer all his life. Born in Nong Het, close to the Vietnam border, he had raised his large family in Sam Liam Mountain. After 1975 "there was some fighting around Sam Liam," he told us. "Particularly in 1976 and 1977.



Ger Thong (center) and Hmong secondary school students. Ger Thong claims he saw "yellow chemicals" on the ground in his village.

Vang Pao soldiers fought against Pathet Lao." We asked why he left Sam Liam Mountain to come here. "There were just too many people in Sam Liam," he replied, "and not enough room to plant upland rice (*het hai*). Some of my relatives had come here to Pha Mai to *het hai het na* (plant part upland dry rice and part paddy land rice). I like that idea, so I moved my family to Nong Pho in Oudoumsay ward."

Reports of "yellow rain" in Ban Done do not end here. In Vientiane three Hmong provided more eyewitness stories. We arranged these interviews ourselves and held them in private. By Lao standards these Hmong men are highly educated. They have completed high school and have lived in Vientiane. However, given the low level of technical development in Laos, basic science and technology can be elusive topics for everyone. In Vientiane high schools, for example, we found students who have never used carbon paper or a telephone.

First we talked briefly with two Hmong high school graduates whose families currently live in the Ban Done area. Both had gone to help harvest their families' rice crops in Ban Done in September and October 1982. "We saw the yellow poison several times. People developed stomach problems, dysentery, coughing, but no one died. If any fell on us we had to wash our clothes to avoid skin problems." They did not provide a source, but when asked they responded, "We are not sure where it comes from." Were there planes overhead? "There were no special planes flying over," they answered. "Just the regular planes that go back and forth. Sometimes there were clouds and sometimes not." Was there any resistance fighting in the area? "The resistance forces are far away in the forest and no fighting occurs around our village."

The second interview was with an older Hmong, associated with the U.S. side during the war as a civilian. He related numerous hearsay stories, including some "yellow rain" stories from Ban Done in 1979. He saw it only in December 1981 when it "fell like rain" in the village of Nam Pung. "It killed the rice and manioc, and burned holes in leaves. If you smell it you become dizzy and if you drink it you become unconscious. I only know of one elderly person and one child who got sick from it. No one died because we used opium and *mak thon*. Hmong are afraid to gather samples for research."

This Hmong man also recalled a "Yellow Rain" report on the Lao broadcast of Radio Free Asia in 1982. He remembered that it said "16,000 people had died from Yellow Rain. The United Nations has researched this. So did people of the United States and they say it comes from the Vietnamese and Soviets."

"Some Hmong believe this," he explained, "because it didn't happen in the American era and the current Lao government controls all of the country and so should know all about this. If it doesn't know, then the Soviets should know." Understandably some Hmong might draw this conclusion, given previous ties to Americans and unquestioning belief in the radio.<sup>11</sup>

In Vientiane we talked to two dozen foreign aid representatives who travel and work regularly in alleged "Yellow Rain" areas. One UN expert works alongside the Hmong in the Pha Hoi pig-cattle raising project. His graduate thesis was on organic phosphates as they pertain to nervous control and he has knowledge of fungus problems. Most of his life he has lived in underdeveloped countries. For understanding our Ban Done stories, we found his comments about the area most instructive.

The Hmong harbor many parasites that cause malaria, tuberculosis, diarrhea, etc. Diseases such as schistosomiasis are prevalent around the Nam Ngum Dam area. Flukes cause many liver problems and 80 percent of the Hmong have roundworms. Parasites consume vitamins which weakens the system making people susceptible to other diseases. The only reason some Hmong in the mountains have better health than those at lower elevations is that they drink spring water.

What about "yellow rain," we asked. "Since I began work in Pha Hoi in February, 1981, I have found no evidence of yellow rain. Parasites are the primary reason for most ailments in that area." We asked about fighting around Phone Hoi. He answered, "I do not fear for my security in Phone Hoi. If there were any problems, the project would not include foreign experts."

Likewise other foreign experts and Lao medical personnel do not link any diseases or deaths to "yellow rain" or poison chemical stories. No one claims to have seen it. Nor does any one believe the LPDR is conducting a genocidal campaign

## The poison chemical "just appears on the ground."

against the Hmong. Like Xua Chang Her, all stress the total lack of scientific research or evidence from inside Laos to verify these accounts. As one foreign medical doctor stated, "How can we begin to know what is abnormal in this country, when we don't even know what is normal?"

Moreover, there is a U.S. Embassy in Laos—a point never mentioned in U.S. reports. Since 1975 it has had a staff of eight Americans and over 50 Lao. In private conversations from 1979–83, not one official has ever indicated that they have confirming evidence from inside Laos about the use of CBW's. Has the Vientiane embassy crosschecked refugee stories in any



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*Lo Nao Chao, fighter in the Hmong resistance until late 1982, displays the rash on his hands at Ban Vi Nai refugee camp in Thailand. He claims the rash, which looks like ringworm, was caused by "yellow rain."*

way? And if so, why haven't the results—positive or negative—been released to the public?

What do Ban Done "yellow poison" stories tell us? And where do they differ from the ones told by refugees? Most notable is that Hmong and ethnic Lao from Ban Done do relate "yellow poison" accounts. Furthermore, while their accounts need more cross-checking, they do indicate some similarities with those from the camps:

- People see waterdrops, primarily yellow, on the ground.
- Upon sighting, people who take opium and *mak thon* and boil their water avoid sickness.
- The few who die had bloody diarrhea or dysentery.
- Mostly children under six years are affected.

The Ban Done and refugee camp accounts differ, however, on two crucial points: who or what is dropping the substance? and why? Determining a motive is central to determining whether the CBW allegations are true or not.

In examining the eight U.S. government interviews with refugees from Ban Done compiled in 1979 we find a wide variety of associations of planes with "yellow rain." Some saw jets, others just heard them. Some seem highly exaggerated such as "rice sacks being dropped from 10,000 feet." Others make political leaps such as seeing Soviets and Vietnamese fly these planes. No one account is consistent with any other.<sup>12</sup>

On the other hand, no person we interviewed inside Ban Done reported seeing airplanes spray anything. Nor do they link the "yellow poison" to insurgent movements or security problems or fighting. And no one even hinted that the LPDR, the Vietnamese, or the Soviets are attempting to "exterminate all Hmong."

Our Ban Done interviews seriously challenge the U.S. government's chemical warfare allegations. They proved to be only a beginning of what could be cross-checked inside Laos.

Some day one of the travel-to-exotic-lands magazines will probably extol the natural richness and ethnic color of Meuang Hom. But for now, it remains wilderness with not even a solid dirt track running through it. Until the government gets the malarial rate down from a contraction rate of 95 percent few travelers will venture into Meuang Hom.





*Long Cheng air base, headquarters for Vang Pao's CIA-backed activities, in February 1975.*

Meuang Hom's 15,000 people are almost all minorities. Ninety-five percent are Hmong. The socialist LPDR carved this new minority district out of northeast Vientiane Province after 1975. The Nam San River is the only "highway" into this mountainous teak-forest area. On the north the district is rimmed by the high escarpments of central Laos, and on the west lies the newly-made Nam Ngum Lake, backwaters of a huge hyroelectric dam.

We traveled to Meuang Hom to gather information on the minorities, essential to any understanding of Laos, since the 68 Highland and Midland Lao tribal groups comprise half the nation's population.<sup>13</sup> Our prime goal was to collect oral history; little has ever been recorded or written about what the Laotians call the "American War" in Laos. We also wanted to collect data on certain government policies: education, literacy, slash-and-burn agriculture versus paddy land cultivation, and health care.

"Yellow rain" was only in the back of our minds, as neither our own nor the U.S government's interviews with Hmong refugees cite Meuang Hom as an alleged "gassing" locale.<sup>14</sup> Only farmer Naw Leu in Ban Done District mentioned Sam Liam Mountain in Meuang Hom in his confusing "yellow dewdrops" account. Hence when local Hmong officials and farmers of Meuang Hom brought up the topic of "yellow poison" incidents during the course of our visits, we took note. Particularly intriguing was a story that claimed 27 lowland ethnic Lao—not Hmong—had died as a result of "the yellow poison."

Although it is less than 100 miles from Vientiane, the journey to the district capital, also called Meuang Hom, takes a full day—unless one has a helicopter. It involves a three-hour boat ride across the Nam Ngum Lake, a two-hour motorized canoe trip up the Nam San River, and, where it becomes too shallow, a nine-mile trek along the banks. As we travelled, we noted changes caused by decades of warfare and the construction of the Nam Ngum Dam. Boat operators are mostly Hmong, not Lowland Lao as one might expect. On the shores of the lake and river we identified a dozen Hmong villages engaged in a mixture of upland rice cultivation and fishing, which several Hmong claimed is a profitable combination. Well over half of the populace are newcomers, displaced from northern provinces during the war (1960–75) or moving from Phu Bia in 1978–79 after the Hmong resistance there was broken. We could not judge whether the latter choice was voluntary or at

the government's suggestion. Some Hmong farmers have simply moved into the area following the typical five-to-seven year cycle of changing fields when old ones become depleted or when overcrowding occurs.

Meuang Hom's Hmong population is a microcosm of the political alliances that developed during the war. About one-third allied themselves with the leftist Pathet Lao, and were led by Hmong leader Faydang. Another third fought for the CIA's secret guerilla army, under the leadership of Vang Pao. The remaining third were caught between the factions, pushed by the bombing and warfare of the day.

Clearly the LPDR sees Meuang Hom as a pilot project for developing minority areas. Its most serious problem is health. Each year, a local medic told us, many people die from curable and preventable diseases such as malaria, diarrhea, dysentery, tuberculosis, dengue fever, hemorrhagic fever, and cholera. Meuang Hom built its first 30-bed hospital in 1977. It is staffed by 41 medical personnel, of which two are advanced medics and four are mid-level. Another four medics, three of whom are Hmong, staff a ten-bed clinic. Meuang Hom has no doctor and the nearest one is in Phone Hone, an eight hour journey. That may sound shocking unless one recognizes that all of Laos has fewer than 300 doctors.

Medical conditions in Meuang Hom appear difficult but not extraordinary by Lao standards. Preventive health care campaigns consume much of the medics' time, chief medic Vieng Kham told us. Last year, emphasis was on teaching villagers to clean under and around their houses and to keep livestock out of living areas. As we walked through six villages we noted the cleanliness. We are quite certain Meuang Hom authorities had

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"How can we begin to know what is abnormal in this country, when we don't even know what is normal?"

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no prior knowledge of our arrival. Our midnight arrival after a 14-hour jungle trek visibly upset local officials. For the first hour of our stay they bawled out the provincial guide for bringing in foreign guests unannounced. For the second hour they made amends with toasts of Lao "white lightning." Thus, the village was probably in its everyday state rather than swept clean for the foreigners.

This year, 44-year old Vieng Kham explained, the focus will be on spraying with DDT. "Ninety-five percent of our people here have had or will get malaria," he said. "Many get the cerebral type which often kills you or makes people go crazy." The medics also teach people to boil their drinking water. High in the mountains Hmong drink clean spring water, he pointed out. "But here in the midlands and lowlands, boiling water is crucial." Also, when Hmong come down from the colder high peaks to the lower hills, they face different diseases, such as malaria.

Meuang Hom's school system consists of 58 elementary classes and three junior high school classes. The biggest problem is lack of classrooms and teachers. Three years ago the district set up its own teacher training school for minorities. By Lao standards Meuang Hom's education facilities are average.<sup>15</sup>

Meuang Hom is targeted to receive U.N. aid for roads, irrigation, and health facilities. To encourage more paddy land cultivation and less slash and burn swidden culture and to discourage opium production, the United Nations program has offered the district land clearing equipment. Many Meuang Hom farmers seem quite favorable to the idea of switching from



upland to paddy cultivation. "It's more productive and easier," was the typical comment. To clear off two to three hectares of forest takes one month of hard labor, a veteran Hmong farmer told us.

**Y**ellow poison" came up quite unexpectedly in Meuang Hom. We were gathering oral history of the war era. What happened, who controlled what, who did what, who sided with whom? Thirty-eight-year-old Pao Hua Vue, a local Hmong leader and veteran Pathet Lao supporter, related two chemical poison stories during our first Meuang Hom interview. Together they provide an invaluable comparison of how a Hmong described alleged pre-1975 "chemical poison" attacks and alleged post-1975 "yellow poison" sightings. Pao told us these stories in front of six district officials, two province officials, and one Foreign Ministry guide.

The first story began on Phu Huad, a flat-top mountain range rimming the Nam Ngum Lake. Mostly Hmong lived there, but also Mien (Yao) and Lao Lum. All Phu Huad people, according to Pao, supported the Pathet Lao. Warfare erupted in 1967 when CIA-backed General Vang Pao tried to gain control of Phu Huad. He first sent his soldiers in U.S. helicopters and "herded many of our people onto them. He forced our young men into his army. The others he sent to refugee camps." Some like Pao Hua Vue escaped Vang Pao's forces and fled into nearby caves and forests. Then, says Pao, the bombing started:

It destroyed everything including my village. United States planes also sprayed chemical poison (*ya chemie ai pit*). Each time seven planes came together: one large transport which sprayed the chemicals, three small T-28's and three F-105's which would drop bombs. The big one flew very low, less than two kilometers high.

If I remember correctly, the first time we saw the chemicals was August, 1967. The planes came many, many times to spray—one day they came six times. [The spraying] happened in 1967 and 1968—always in August, September and October, just before our harvests.

The chemical looked like yellowish-white rain (*met fawn leuang khao*). About five minutes after the planes left, it covered the ground. Within an hour, leaves turned light yellow. Next day, they began to dry up and turn red. After one week our fields looked as if we had slashed and burned. Everything was dead. All our rice died.

The chemicals caused people to get sick with a drunken feeling, dizziness, headaches, uncontrollable shaking, and bloody diarrhea. Within one week some died. In my village of Ban Phak Khao alone 15 died. (He then provided us with the names of four Hmong men in their fifties, three of whom were relatives.)

After that we were very hungry. We planted manioc and taro and searched for food in the forest, as we had no rice. It was three years before green trees began to come back.

I never saw any chemical like this before. I guess the United States did this because our area was Pathet-Lao controlled, and [they] wanted to increase Vang Pao's power.

Even now, claims Pao Hua Vue, people in Phu Huad still feel sick from these chemicals, especially during the monsoon in May, June and July. "They get dizzy and shake all over." It's one of the reasons he moved away from Phu Huad and came to Meuang Hom. Pao also charged:

Those chemicals affect our babies, too. One was born without a head, another without an ear, and the third had no anus. They all died. The families all lived in Phu Huad until 1980. Then they moved away. (Again he provided names of



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*Yang Chia, the wife of Lo Nao Chao, saw yellow drops on leaves, which she says made the members of one family sick.*

the families and their current residences.) This was in 1980 and 1981. We never saw newborns like those. Never. Only since the war. Only after the chemicals [were dropped.]

The U.S. Air Force's history on herbicides documents that it sprayed about 420,000 gallons of Agents Orange, Blue and White on 163,000 acres of Laos in an attempt to deny the enemy cover and crops.<sup>16</sup>

Yet to conclude from Pao's account alone that the United States sprayed Agent Orange on Phu Huad would be hasty and unscholarly. Some details (airplane formation, altitude of planes, effects on crops) seem accurate. Others do not. For example, Pao described the spray as yellowish-white. In fact, these defoliants are colorless.

Pao also attributes deaths to the sprayings. Ten years ago the National Academy of Sciences reported that highland Montagnards in Vietnam associated similar medical problems and death with U.S. defoliation. Montagnards in 10 villages attributed a variety of ailments to spraying with Agent Orange, including diarrhea, cramps, rashes, fever, coughing blood and the deaths of children. Mathew Meselson, an American biochemist, says herbicides "should not have [had] these effects unless the villagers had some unusual and quite unexpected sensitivity."<sup>17</sup> Ethnic Vietnamese exposed to the spraying in the lowlands did not associate it with immediate human death.

Obviously we need to investigate and cross-check Pao's Agent Orange claims before even concluding it occurred, let alone what medical problems resulted. Any investigation first

requires obtaining classified U.S. Air Force and CIA defoliation records on Laos. Pao Hua Vue's account is, however, instructive about how Hmong describe chemicals, war events and their aftermath. His imprecise vocabulary and terminology mirrors that used by Hmong refugees in their "yellow rain" accounts.

Without a pause Pao Hua Vue's first poison chemical story flowed into his second:

We began to see chemicals again in 1979, 1980, and 1981. For over three years we have seen them. The chemicals are yellow particles (*met si leuang*). This time, however, we don't see airplanes spray it. It's not like before. Before we saw the chemicals fall from the planes like rain. Now we don't know where it comes from. We see it on the ground in the fields and forest. The particles are dry, not wet, and bright yellow like this (pointing to bright yellow paint on the pineapple bombler now used as a kerosene lamp.)

We are confused about where it comes from. Some people say these chemicals are sprayed like before—by the Americans and Vang Pao. Things like this are difficult for us to understand. We are very backwards here and don't understand a great deal. Maybe it is the Americans, maybe not.

No, I never saw it fall from the sky, only on the ground. And it doesn't kill trees like before. Just the leaves develop holes.

But people get sick like before; they get dizzy, drunk and have bloody diarrhea. And some people died recently, others last year. In Ban Nam Taad 15 people died within two days before we could get the doctor to come. Others just got sick, so we took them away or to the hospital and they recovered.

That was during the harvest season over one year ago, December 1981. Ban Nam Taad is over 10 kilometers from here, but it doesn't exist anymore. People moved away, because too many people died there. It made them feel uneasy.

(Did they drink unboiled water?) Yes, I think they died after drinking unboiled water. (What about food, did it make people sick?) Only the vegetables washed in unboiled water. (When people drink unboiled water, do they normally get sick?) Yes, maybe one or two in a village. But this is special because so many people died within one month. They were all from the same village.

(After you ate the harvested rice, did anyone get sick?) No, we never got stomach problems from that. We only get diarrhea and other things as usual. But with the chemicals it's different. We get a drunken feeling and dizziness.

A Lowland Lao doctor named Thitming came once from the provincial health office to check. He said this [illness] was due to chemical poisons (*ya pit chemie*.) We don't know what kind of research he did. (Did he take samples of the chemicals?) Yes, he did take some leaf samples. There was also a military doctor who came because some of the soldiers got dizzy and drunk, too. I don't know his name. He also took some samples and told us the illness was from chemicals. He didn't say what kind of chemical. These doctors didn't come together. Both came in October 1981.

Yes, I saw [the chemicals] with my own eyes. (And did you get sick?) No, I did not. Some of us took traditional medicine. Usually when we get sick this is what we use because we are poor. Most adults take opium; but it's the children up to six years who get the sickest and often die.

Everyone here has seen it. It always comes at harvest (September to December depending on type of rice and

when planted.) Not when we plant. We saw it from September to December (1982), but not since then. (And before that?) Yes, it began in 1979. But not before that. Usually it comes at mid-day, sometimes at night or early in the morning.

When it comes we see it everywhere. In the mountains, in plains, but mostly in ricefields, both upland and paddy. We saw it all around here [Ban Meuang Hom.] But not as much.

(Do you see planes when it comes?) Sometimes we hear a plane, and sometimes not. But we never see the planes spray like before. Never.

The dozen Meuang Hom residents sitting around us began to interject various points. A totally private meeting is preferable, but in Laos that is not always possible or polite. Is it perhaps cholera, we asked. No, they all agreed. One Hmong elder explained: "If it were cholera, we would use hospital medicine, not opium. We have had cholera often in this area, so we know about this. For the chemicals, hospital medicines don't work. Opium does. We know this because everyone who takes opium survives, and those that don't die."

What about Lao Lum and other ethnic groups, do they get sick from chemicals also? "Yes," the district chairman said, "in July 1982, 27 Lao Lum died from the chemicals in Vang Luang village. All in one month. It was mostly children; they had the same sickness. A few Lao Theung died but that was not special like with the Lao Lum and Lao Sung people. Vang Luang is about four kilometers to the north of here."

At this point we noticed everyone nodding agreement with the Ban Vang Luang poison story except one crucial person—Vieng Kham, the district's chief medic. A few hours later during an interview on Meuang Hom's medical conditions we

### "For the 'chemicals,' hospital medicines don't work. Opium does."

asked what he thought about the "chemical poison" stories. With the same group present, Vieng Kham debunked the Vang Luang "poison chemical" story in a most polite, yet precise manner.

Among those present, Vieng Kham, a Lao Theung of the Khmu tribe, ranked among the most educated. Originally from Vang Vieng, his parents sent him at age 12 to school in the Pathet Lao zone of Sam Neua. After finishing seven years of schooling there, he studied at the four-year mid-level medics school in the caves of Sam Neua. He is a veteran "cave-dweller" as Pathet Lao joke about themselves. The phrase refers to cave sanctuaries where PL lived for ten years during the U.S. bombing. After five years at the 103rd Military Hospital in Vientiane, Vieng Kham was assigned to Meuang Hom District Hospital in 1980.

Had he ever treated people who became sick from chemicals, we asked. "Yes, some people from here got sick and came to Vientiane in 1975 or 1976. Their urine was black and we thought it was typhoid fever (*kai tho la pit*). Later, a highly trained French doctor diagnosed it as insecticide poisoning (*ya pit chemie sat*). But he didn't know exactly what kind of chemical."

Vieng Kham pointed out that when Lao get cerebral (*falci-parum*) malaria they often attribute it to chemicals.

That's what happened in Ban Vang Luang last year. One person got sick and died within 20 hours. Within ten days another 24 or so people died. At this point we made a thorough check of the village to see for ourselves what was





*This former soldier in Vang Pao's secret army now operates a cloth shop in Phonesavan, Xieng Khouang province. His jacket was issued by the CIA.*

going on. I realized the problem was contagious, so we separated the sick from the well. Then we cleaned the village, told people to boil their water and gave them medicine. Most of those who died were under three years. In total 27 people died; we couldn't get them to the hospital in time. More than 20 were brought to our district hospital and another three to Vientiane and did not die. We gave quinine shots and tetracycline and chloroquine pills.

These are poor, rural people. They don't always understand how important mosquito nets or shirts are. Sometimes they cannot afford them. Mosquitoes bite them a lot. Remember, I told you malaria is epidemic here—95 percent of the people get it. It is our greatest problem. And here we have much cerebral malaria. It the kind that goes to the brain, clogs the blood and makes people shake a lot and kills very quickly.

Before our journey to Meuang Hom both Laotians and foreigners had warned us about Meuang Hom's severe malarial problems. When five Soviet journalists and two Lao press office guides visited Meuang Hom in November 1982, five of the seven got malaria.

During an evening stroll in Meuang Hom we talked privately to Hmong residents, many of whom now have refugee relatives in the United States. One educated Hmong man was listening to Voice of America quite unabashedly. We asked if he ever heard "yellow rain" stories on VOA. "All the time, but I don't believe them." He was equally skeptical about the "yellow poison" stories in Ban Nam Taad. "We don't know very much

about science and we have no scientists to study such problems," said the 30-year-old man, who had previously studied English with American CIA advisors. "When Hmong people don't understand something we just say what we think it is. We don't research problems like you Americans."

Other residents speculated in a more sinister vein. Some Hmong who had fought for 20 years against the CIA's secret Hmong army believe its remnants are the source of the "poison." They produce no evidence, except to cite a resistance group's attack on a government rice warehouse in November 1982, which caused an entire village to burn down. Like some refugee stories, these accounts provide few facts and much leftover bitterness. Both the vanquished and victors often smother their logic with years of accumulated suspicions and warfare propaganda.

Like our Ban Done trip, the one to Meuang Hom left us with many unanswered questions. Yet, we did gain a better understanding of how fiction may slip into unexplainable traumas. Villagers associated deaths in Van Luang possibly caused by cerebral malaria with strange yellow substances. This is not to say that farmer Pao lies and medic Vieng Kham doesn't. Rather, Vieng Kham explains it by medical reasoning while Pao sees it through his past experience with "chemical poison."

Certain aspects of the Meuang Hom accounts remain consistent with those from Ban Done. People see yellow waterdrops on the ground. Opium helps the resulting illness. Most develop dizziness, bloody diarrhea, drunken feelings. Those who die are most often children under six who have bloody diarrhea or dysentery. And no one links airplanes with the yellow substance.

Next we examine the alleged motive. Is the LPDR using CBW's to exterminate the Hmong or to drive them out of Laos as U.S. reports conclude?

If the LPDR has ever employed CBW's as a military weapon against Hmong, the optimum place and time would have been Phu Bia mountain between 1976 and 1978.

The Haig Report tallies 200 Phu Bia "chemical attacks" out of 226 alleged incidents in all of Laos between 1975–81. Out of 6,310 alleged "gas" deaths, 5,421 occurred in Phu Bia.<sup>18</sup> Indeed, it would seem a monsoon of "yellow rain" has fallen on this mountain and its surrounding villages and killed thousands. During our interviews in Ban Vinai, five out of eight Hmong refugees described living in the Phu Bia area between 1975–78. Four witnessed "chemical poisons" on Phu Bia. Two men actually saw small biplanes drop the chemicals. One of these recalled an incident where "after one hour of drunkenness and vomiting blood some people died." Three talked about the lack of food, medicine and salt in Phu Bia during their resistance.

When the Pathet Lao took control in mid-1975, former troops of the CIA's Secret Army formed insurgency movements against their wartime enemy. Made up mostly of Vang Pao Hmong, but also some Lao Theung, the groups took control of Phu Bia, Laos' highest mountain and the surrounding district of Saysomboun. Estimates of these Phu Bia insurgents range from 3,500 to 50,000, the latter probably including relatives.

By the beginning of 1979, LPDR and Vietnamese forces had routed out Phu Bia resistance bases. Some of the defeated insurgents fled to Thai refugee camps, others indicated their desires to stay and live peacefully in Laos. In late March 1979, we and ten other international aid representatives found about 12,000 former Phu Bia resistance people throughout Saysomboun District.<sup>19</sup> To secure immediate relief and long-term development aid, Lao officials took representatives of seven



United Nations agencies, the Mennonite Central Committee and the American Friends Service Committee on a helicopter trip around Phu Bia. For two days we hedge-hopped from one old CIA landing strip to another: Ban Son, Meuang Cha, Phong Sai, Meuang O, Meuang Om—all alleged poison gas sites.

Saysomboun officials briefed the delegation on how "remnants of Vang Pao's Secret Army plagued the area with problems by attacking convoys, killing civil servants, stealing rice, and burning fields." Saysomboun was reorganized as a district in early 1979, after the insurgency "was wiped out." District officials appealed for immediate relief supplies as well as long-term development aid to help about 50,000 people, 70 percent of whom are Hmong. Former insurgents would also benefit.

Officials claimed dysentery, diarrhea, malaria, and diphtheria were at epidemic stages, while government food supplies were inadequate to feed so many. Even our cursory visit revealed conditions abnormal by Lao standards. Compared to Highland and Midland tribal people of other areas, Saysomboun's appeared poorer and more malnourished. Rarely in Laos did we see so many children with bloated bellies, a sign of severe lack of food and medicines. Clearly recent local warfare had taken its toll.

On three occasions we slipped away from the group to see if Hmong from Phu Bia privately confirmed our suspicions. A young Hmong woman's comments were typical: "On Phu Bia we had no food, no cloth, no medicines. And the Americans never came to help us like before. Many died, especially children. We are tired of fighting. We only want to plant our crops." No one mentioned "chemical poisons" or "yellow rain."

At the time, we knew about the "yellow rain" allegations being told by some Hmong refugees. But, we had no idea we were strolling through these "poison gas" sites. Perhaps it never occurred to us because it seemed preposterous. Would the LPDR jeopardize millions in aid by taking such a high-level international delegation to sites which were being gassed?<sup>20</sup>

The aid trip did produce relief and aid projects. One, financed by the United Nations Development Program, is helping Hmong set up a long-term pig and cattle-raising project in Meuang Cha's rich plateau.<sup>21</sup> In conjunction with this, a UN expert has traveled by land regularly since 1981 to Meuang Cha, staying days each time. He has heard no "yellow rain" stories. "Occasionally I hear rumors about people being taken away for medical care." But that could mean anything, he insisted. Other UN personnel have also visited Saysomboun District since 1979. They too have found nothing.

**W**hat exactly happened in Phu Bia between 1975 and 1978? Did people get sick and die from "yellow rain" attacks? Or from malnourishment and disease? What was the nature of the fighting? What drove so many Hmong families to leave Phu Bia and trek 150 miles to Ban Vi Nai refugee camps? And how many stayed in Laos? Any serious "yellow rain" investigation must seek such answers. For in them lie clues to the mystery.

To collect such data we constantly seek people who fought in Phu Bia—on both sides. In Meuang Hom we interviewed Long Yia, a 28-year-old former Hmong resistance fighter. Long Yia was born in Pha Khe, close to Vang Pao's CIA base at Long Cheng. Although his family lived in "Vang Pao's region," they remained "ordinary people" during the war. Ironically, it was only after 1975 while he was in Phu Bia that Long Yia fought against the current socialist leaders.



*As a child, this Hmong mother fled American bombing. Today she farms in her old village.*

Long Yia related the following in the presence of Hmong officials of Meuang Hom. Obviously he may have altered his story a bit for their benefit. Yet, as we will see later, much of what he says can be corroborated.

Two Vang Pao officers, Sai Sua and Yong Giua, came to our village. They said it was no longer good for us to stay in our area. They instructed the entire village to move to Phu Bia where they had created a new government. So all 60 families went. That was in February 1976.

When we reached Phu Bia we found thousands of people. More than 1,000 families on the whole mountain. There were about 200 Vang Pao soldiers from Long Cheng and about 30 Thai soldiers. Also, a few Lao Theung. Another 2,000 to 3,000 of us took up weapons because we were afraid. Sai Sua told us if we leave Phu Bia, the Pathet Lao would kill us or send us to "seminar" (re-education).

Soon people became hungry; there wasn't enough food or clothes or salt. (He repeated this phrase four times in 30 minutes.) We had absolutely nothing. That was from 1976 until 1979.

Until 1979 liberation soldiers (PL) fought against Vang Pao soldiers and the Thai. Then they all ran away, leaving us in Phu Bia with the Pathet Lao.

Hmong (on Phu Bia) divided at this point. Some fled to Thailand and America. The majority of Hmong stayed. In our area more than 60 families decided to go with the government and start farming again. This way we could raise our children and take care of the old.

The Pathet Lao Hmong said the government was not fighting against Hmong people, just Vang Pao soldiers who continued to fight. Because we were just ordinary people, they would help us, give us food and animals to raise. They did give us enough to eat.

In August 1979 we decided Phu Bia was not a good place for us: too much hunger, and not enough land. So about 60 families left for Phu Phaman. (It's about two days' walk from here. I came here to exchange rice for salt.)

We decided not to go back to our old village. the land is not good for *het na* (plant paddy rice). It's better if we *het na* and *het hai* (plant upland dry rice) at the same time. (This concept was pushed by USAID and Vang Pao during the war, as well as currently by the new government.) Here we found plenty of land for paddy. So we settled in Meuang Hom. Yes, now we plant *na sac* (paddy cultivation requiring no buffalo plowing.)

Without mentioning chemical weapons, we asked Long Yia to describe the fighting. His lack of pre-1975 military experience was somewhat confirmed by his limited knowledge of basic weapons. ("Both sides used big and small bullets.") "The biggest weapon was one meter long and five inches wide. It was American made. In 1975 Vang Pao's planes brought these weapons to Phu Bia and hid them in the caves."

Did you see any shooting from planes? "No, no planes shot at us. No planes bombed us. No, we saw no planes like before. Not even Vang Pao's (sic) planes filled with rice came." This refers to the ten-year airdrops of food, clothing and medicine made by the CIA's private airline, Air America. "That's why we starved. There was no rice. We planted corn and gathered wild forest manioc. But it wasn't enough."

Did anyone in your family get sick? "Out of ten people in my family who went to Phu Bia, four people died. They starved." In Phu Bia mostly children and old people died this way, he said.

How did the children look before they died? "Oh, they had huge stomachs and yellow faces. There was nothing we could do for them because everyone lacked food. If they ate the manioc their stomachs only swelled more."

What about salt? "For two years I didn't eat a single grain of salt. We had none. We had no western medicines, too. We couldn't even go gather traditional medicines in the forest because [the roots, etc.] don't grow well in that area and we couldn't go very far away. Our clothes were shreds."

Long Yia's "home" on Phu Bia was about half-way up the 9,200 foot mountain—about 1,000 feet higher than where Hmong normally chose to live. During the dry, cold season, the windchill factor can be severe even at 3,000 feet. Occasionally we have heard that people froze to death in those mountains. Thus clothing—or the lack of it—becomes more crucial than in the lowland tropical areas.

Did anyone travel back and forth from the refugee camps to Phu Bia?

Yes, but only soldiers. About ten to 20 would come at a time from Thailand. One time a Thai soldier came with them. I remember because he offered us cigarettes. Each carried their food, an M-16 and a bullet belt. They told us we must wait there (at Phu Bia). Soon the Chinese and Americans—President Reagan—will send more soldiers and Long Cheng will rise again. That was in December 1977. They said they would come back, but for two years we didn't see them. They promised we would be free like before.

Vang Pao never came. He only spoke to us on a tape—like you use in that machine. I remember what he said: "I know it's difficult, but one day I will return. And the United States will help me like before. And the Chinese will give us aid also. Before I was your leader, now I am an ordinary person. Soon I will return to be your leader again." That's what Vang Pao said. And that's what we believed.

I even saw a picture of Vang Pao shaking hands with

Reagan. (He was absolutely certain it was Reagan, not Carter's picture.) I touched this picture myself. Vang Pao sent it to us. We thought they would help with planes and drop bombs like before. To destroy the Lao government, kill all the Lao and Viet soldiers.

Since Long Yia did not mention chemicals or poisons in his accounts of the fighting and illness, we broached the "chemical" topic, indirectly at first. With your own eyes, did you ever see chemicals used during the fighting? "In Phu Bia, I never saw any chemicals. But when I came here (Meuang Hom District) I saw some."

Have you ever heard any stories about chemicals before? "Before, when we lived in Long Cheng area (pre-1975), Vang Pao told us chemicals had been dropped. And all the people on Phu Huad, Phu Se, Phu Sot all died from chemicals. They used a lot of poison (*ya bua*)—a lot. All the trees died. That's what I heard, but I never saw this myself. We never went into that area—too much shooting."

We pressed once more. Did you ever hear people talk about chemicals in Phu Bia? "No, never."

Long Yia's account of Phu Bia intrigued but did not convince us. We wondered if this was "a set-up." Did officials brief him beforehand? Was it true he just happened to be in Meuang Hom "exchanging rice for salt?" Only recently have we corroborated much of what Long Yia said about the nature of the Phu Bia fighting and severe living conditions. We interviewed two eyewitnesses—both non-Hmong: the first a Lao Theung who fought with the Phu Bia resistance, the second a Lao Lum refugee who fought against the Phu Bia resistance.



*Hmong students approaching the new secondary school in Meuang Hom, whose population is 95 percent Hmong.*

© Jacqui Chapron



While interviewing Lao Theung villagers of Nam Gott in Xieng Khouang Province, we met Mr. Khamphan. As chairman of the nine-member village committee, Khamphan related the mountain villagers' history. In 1969, he explained, "Vang Pao's troops came, forced almost all our people onto a plane and took us to Long Cheng. Vang Pao forced our men to become his soldiers; women and children became refugees."

After 1975 these Lao Theung soldiers and their families joined with the Hmong resistance in Phu Bia. Out of 54 Lao Theung families in Nam Gok, 37 had served until 1978-79 with the post-war Hmong resistance. Khamphan's family was one. Out of fear, Khamphan and others joined Vang Pao's soldiers at the foot of Phu Bia "to resist communist control. We were afraid the Pathet Lao would kill us. That's what the

### "In Phu Bia I never saw any chemicals."

Americans had told us," Khamphan stated. In June 1978 these Lao Theung families decided to return to their native village of Nam Gott. In Phu Bia there was "too much hunger and no salt. We almost starved," middle-aged Khamphan repeated several times as if traumatized by the memory. His description of conditions in Phu Bia merits attention:

So many people died, so many. That was the worst thing. We had no food. We had no medicine. Only traditional herbs. My child died because of this. He had a bad stomach and we had no medicines. Most people suffered from dysentery (*long thong deng*) or lung problems. Many had malaria because we had no mosquito nets. Every family in Phu Bia lost at least one member—sometimes up to six. It was so terrible.

Let us assume that resistance forces including family members on Phu Bia numbered between 10,000 and 20,000. If Khamphan's minimum death rate (one per family) is correct, from 1,600 to over 3,000 people probably died between 1975 and 1979.<sup>22</sup> If we average his estimates at three persons per family, death figures soar to between 4,500 and 9,000. Excluding deaths from fighting, this means thousands very likely died in Phu Bia from hunger and disease.

When queried about planes bombing or spraying chemicals, Khamphan replied to each, "No, I never saw this in Phu Bia." Did he ever hear people talk about chemicals? "No, I never heard about anything like that."

Our second independent source on the Phu Bia fighting is a Lao Lum refugee now settled in the United States. We interviewed him twice in mid-1983. For his own protection, we call him Kham rather than use his real name. Kham, an officer, graduated from the old Royal Government's military school. From 1976 until he fled Laos at the end of 1979, the LPDR sent him to "seminar"—political re-education. For the first two years he was in Xieng Khouang Province doing a mixture of political studies and various construction jobs. In mid-1978 the military appointed Kham head of a thirty-man transport unit. For one year his unit moved food, weapons, medicine and military equipment between Long Cheng, Pha Ngu, Pha Khao, Vang Vieng, Meuang Cha, Ban Son, Pha Phai and Phonesavan. These are included on the U.S. government's map designating areas of alleged concentrated CBW attacks.<sup>23</sup> Kham remembers seeing about 3,000 "captured Hmong" in Meuang Cha, 1,700 in Pha Ngu and 1,200 in Pha Phai.

Between transport trips, his unit "raised animals" and "took care of captured Chao Fa people." From March to August 1979, his unit's base was at Meuang Cha, a rich plateau bordered on the north by Phu Bia. His unit helped the 700 Chao Fa people

"to grow upland and paddy rice and make gardens." They had just come out of the mountains "and had nothing, absolutely nothing. We gave them everything: food, medicine, cloth, mosquito nets."

The majority were Hmong, Kham continued. "There were also a few Lao Theung, but none of them fled to Thailand, like some Hmong later did. Those Hmong were poorer than Lao Theung usually are." That statement reflects a reversal of the usual Lao Lum prejudice: "Hmong are dirty, clever and rich. But, Lao Theung are dirty, stupid and poor." One hears such stereotype comments particularly among the Vientiane elite.

Here is how Kham described the health of Chao Fa Hmong at Meuang Cha:

They had no salt and not enough food and clothing for many years while living in the forest. They had a lot of diseases. Some were nearly blind from malnutrition. Most had malaria, diarrhea and stomach problems. Some had appendicitis (*sai ting*.)

From August to November 1979 Kham's unit moved to Pha Phai, a valley on the north side of Phu Bia and close to some skirmishes. Again, he transported goods and cared for Chao Fa people coming out of insurgent areas.

Their health was bad like people in Meuang Cha: skinny, yellow skin with lots of sores which they scratched badly. They also had smallpox (*mak suk*). We told them to wash everything well and keep things clean.



Refugee from the Phu Bia resistance in April 1979, just after the resistance had been defeated by the Lao government. The government asked for special assistance to help these Hmong families reestablish themselves.



Three times my unit got caught in crossfire, very small fighting, no battles. My unit did not fight. Our job was to encourage people to stop resisting, to take them out of the area and give them basic needs. Soon the fighting was over.

Kham said about 1,000 Hmong PL soldiers, led by Hmong General Phak Chai, fought against the Hmong insurgents. We pressed for details on the weapons both sides used:

In 1975 Chao Fa Hmong took weapons from the CIA's Long Cheng base and hid them in the Phu Bia forests. Mainly they used M-16 rifles, M-79 grenade launchers, M-26 hand grenades, and small-caliber, long-barreled rifles. They had no artillery guns. They mainly fought in small groups, ambushing PL troops and then running.

Pathet Lao soldiers carried AK-47 rifles, B-40 and B-41 rocket launchers and American-made incendiary rockets (1½ meters long). Helicopters and AN-2 (Soviet bi-planes) were used to transport the wounded, food, and ammunition, not for fighting. No T-28's were used. Neither were the MIG's. I never saw either of those planes in Phu Bia.

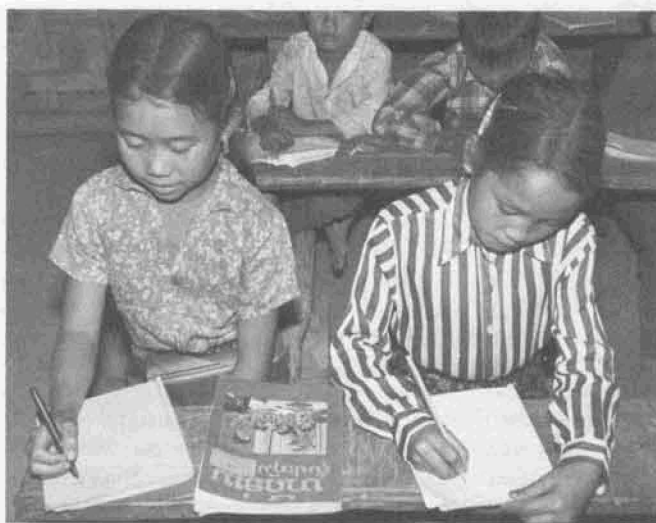
The only bombs the PL dropped were those American-made incendiary bombs—to burn out resistance bases. Small porter planes dropped them. (Lao call them "Vee-ver's" because they make a loud noise, he said. This perhaps refers to L-19's, a small spotter plane. These were not T-28's or AN-2's, he insisted.)

Sometimes the PL used planes with loudspeakers to tell the resistance that they could surrender and would not be killed.

Kham's account directly contradicts reports claiming MIG's, Soviet-made biplanes, T-28's and helicopters are spraying "yellow rain" on Phu Bia Hmong. However, Kham did say PL forces used incendiaries, the same bombs U.S. forces used throughout the Indochina war.

What about Vietnamese troops? What did they use? Kham said three Vietnamese battalions (about 1,800 troops) fought with the PL against the Chao Fa Hmong. They had the same weapons plus one additional one: a long-range missile (*luk song fai* or *cha luat*). "But it was useless in Phu Bia—too big. So they never used it." As for planes, "the Vietnamese never used helicopters or planes."

Up to this point, Kham had never mentioned "poisons" or "chemical sprayings." So we asked. "Oh, yes. Chao Fa Hmong used a white powder (*feun khao*). It looks like sugar or salt. They slip it into our water or food. After one month you die slowly in your sleep. If you cannot get to a hospital, you die. People in Vientiane say if you are wearing a military uniform and visit the



Elementary school students in Meuang Hom. Two Hmong teachers instruct 29 first and second graders, including 14 Hmong, eight Mien, three Lao, and four Lao Theung.

Did the PL or Vietnamese ever use poisons or chemicals? "No, they don't use anything like that." Did you ever see yellow spots of water or yellow powder? "No, never."

Kham finally left Phu Bia area because of infected foot blisters and a severe malaria attack. Upon recovery he fled to Thailand to join relatives in the United States.

Gary Yia Lee, a Hmong born in Laos and currently a scholar in Australia, wrote about the Phu Bia insurgency in 1981. "[Those Vang Pao Hmong] in hiding have found it extremely difficult to farm in the open and have had to subsist on tubers and roots gathered from the jungle. Many... have eaten leaves and gone without salt for many months, moving from one mountain top to another..." Lee points out that Hmong settled in "liberated villages" also faced economic hardships as a result of insecurities created by Hmong resistance activities. "Vang Pao's supporters and other subversive elements sometimes disrupt the agricultural activities of the more settled farmers with their guerrilla attacks. Those in especially sensitive areas sometimes have to move to safer places and abandon unharvested crops."<sup>24</sup>

By 1977 it was these security problems, suggest Lee, which brought on the Phu Bia campaign. Thus, the Phu Bia military actions were not part of an unprovoked "genocidal campaign to exterminate the Hmong," as some charge. It was a military counterattack against disruptive guerrilla activities.

Furthermore, as our eyewitnesses inside Laos and Hmong refugees tell, families with Phu Bia resistance suffered greatly. They lacked food, salt, clothing and medicines from 1975–1979. Under such conditions, it is probable that at least a thousand, perhaps several thousand, died not of direct warfare but of severe malnourishment and disease.

Although such background is crucial, it still leaves unanswered whether the LPDR violated international agreements by dropping any CBW on anyone—civilian or military.

We found former Phu Bia fighters—on both sides—who claim the LPDR never has dropped "yellow rain" or any chemical on the area. This starkly contradicts allegations made by former Phu Bia fighters currently living in Ban Vi Nai Refugee Camp. To determine where truth lies, much more research is needed. Sociologists and anthropologists skilled in interviewing need to cross-check refugee camp stories with those inside Laos.

## We still do not know whether "yellow rain" exists.

house of someone you don't know, don't eat the food or drink the water. It may have poison in it."

For years we have heard various versions of this tale: prior to each journey upcountry, at least a half-dozen Lowland Lao—including the well-educated—lectured us about it. We have never been poisoned, nor do we know anyone who has. When pressed, Kham, like most Lao admitted he had heard about *feun khao* before 1975. "I just heard about it. I never saw anyone get sick from this."

Did the PL or Vietnamese ever carry gas masks or any other protective clothing? "No, no one had any gas masks or protective equipment for chemicals."

Our six weeks inside Laos did not produce the State Department's "smoking gun" or "thousands of pieces of mutually corroborative evidence." Our investigation draws no conclusions. We still do not know whether "yellow rain" exists or whether it is a lethal chemical weapon, unexplainable diseases, natural toxic or non-toxic substances, or an old-fashioned Lao-style rumor.

We did, however, pick up clues to the "yellow rain" mystery. What light do our interviews shed on the four most popular hypotheses today?

**Hypothesis One:** The LPDR uses lethal CBW's (T-2 toxins, specifically) to rid the highlands of Vang Pao Hmong insurgents and their families who create insecurity problems and economic turmoil.<sup>25</sup> Some claim this is part of a genocide campaign—the planned extermination of a national or racial group. Obviously the above Hmong interviews contradict that point. Consider also the leadership of Xieng Khouang Province where the U.S. government says a "genocidal campaign against defenseless [Hmong]" goes on.<sup>26</sup> There for the first time in Lao history Hmong head the administration, military, and police.

It is plausible that the LPDR used lethal or non-lethal chemicals (CS) during the 1977–78 fighting. Yet, those who fought in Phu Bia—lowlander Kham, midlander Khamphan and highlander Long Yia—say no chemicals were used except incendiary bombs.

If chemicals were used, they would have to be delivered by planes. Refugees are totally inconsistent on this point. Inside Laos no one directly linked planes to their sightings of "yellow poisons." Nor did they suggest it appeared as a result of fighting in their areas.

Data gathered inside Laos does not support claims that the LPDR wants to eliminate the Hmong or that it is using aerial spraying to attack them with chemical weapons.

**Hypothesis Two:** "Yellow rain" is an unfounded rumor coming solely out of the politically charged Ban Vi Nai refugee camp to slander the Lao government.

Both Lao officials and villagers provide eyewitness accounts of yellow substances. They link the substances to illness and deaths. Furthermore it "appears" in Hmong and Lao Lum villages.

**Hypothesis Three:** Infectious diseases strike an area, and un-



*Hmong boy snacks on sweet corn in Meuang Hom village.*

educated villagers attribute their origin to yellow substances—occurring around the same time.<sup>27</sup>

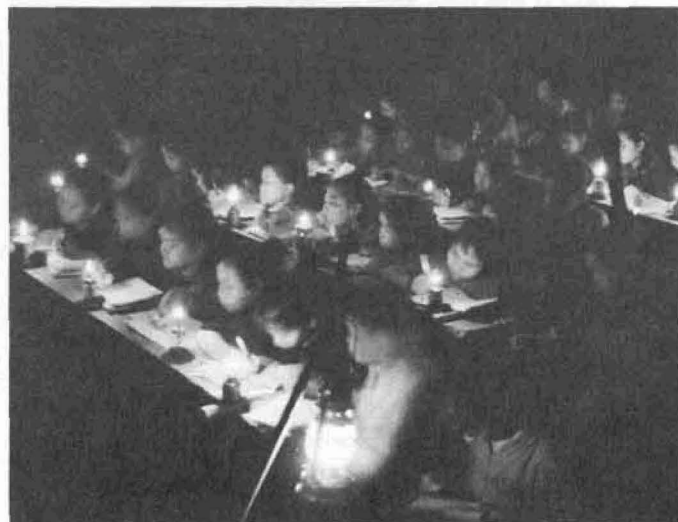
Discrepancies between farmer Pao and medic Vieng Kham about what happened in Vang Luang village suggest that villagers make such links. Similarly, in Ban Done the UN expert's scientific observations question yellow poison stories told by the farmers and Hmong leader Xua Chang Her.

In conjunction with this, we should remember that only 80 years ago infectious diseases (pneumonia, influenza, tuberculosis, diarrhea, intestinal diseases) were our prime killers, as they still are in developing countries. Furthermore, over 1,000

District officials appealed for immediate relief and longterm development aid for 30,000 Hmong after the resistance was defeated.

new diseases (e.g. AIDS) appear each year in the United States, according to the Center for Disease Control.<sup>28</sup> A few years ago, Legionnaires' Disease created a national epidemic of rumors and unfounded judgments. The scare-talk ranged from "it's a Communist plot" to "it's a military test of our secret bacteriological weapons."

**Hypothesis Four:** A natural phenomenon, bee feces mixed with pollen, causes the yellow spots on U.S. samples of "yellow rain"; but it is not known whether or why this leads to sickness and death. Thus, "whatever the source of mycotoxins in various samples, it is possible that yellow rain is bee excrement."<sup>29</sup>



*Children attend elementary school in a cave during the American bombing.*

Every eyewitness account gathered in Laos speaks of "yellow substances" on the ground, and all claim no knowledge of their source. The substance appears primarily at harvest and planting time when people are in the fields. Witnesses all claim the substances make them sick with dizziness, drunkenness, bloody diarrhea and headaches. Opium "suppresses and cures" the symptoms.

Some observers question the "natural phenomenon" hypothesis, because it does not explain why Lao never speak about "yellow poisons" appearing before 1975. That simply is not true: "yellow poisons" or "yellow rain" is how Lao people describe what was possibly U.S. defoliation before 1975.

We cannot reach final conclusions about CBW allegations on the basis of circumstantial evidence from Laotians either

inside or outside Laos. Accounts must be crosschecked against each other and against scientific data. At the very beginning, we need to know a great deal more about natural phenomenon in Laos before making charges about unnatural happenings.

Laos does not have equipment, personnel or money to conduct such research. Thus it is critical that an international scientific team investigate. Ideally such a team would be impartial and include physical scientists, tropical medical doctors, anthropologists and sociologists. On several occasions the Lao government has made offers to private individuals and a diplomat to invite such a team. It is high time to accept the invitation. As Hmong leader Xua Chang Her said in Ban Done, "We need some scientific people to tell us what this is, where it comes from, and what we can do about it." □

## Notes:

1. *Yellow Rain: the Arms Control Implications*, Hearing of the Subcommittee on Arms Control, Oceans, International Operations and Environment, Committee on Foreign Relations, U.S. Senate, February 24, 1983.
2. *New York Times*, February 5, 1982.
3. In 1982-83 high-ranking officials of the LPDR have told seven individuals their government would allow an "impartial, international scientific delegation" to make an investigation in Laos on this matter. It was stated to the authors in July, 1982 and again in January 1983. The same statement was told to three American and one British scientists, as well as to a prominent European diplomat.
4. An unmarried seventh-grade Lao teacher receives monthly about 360 kip (\$10 official rate) plus subsidized rice and utility benefits amounting to another \$10. Total yearly wages and benefits: \$240.
5. Interview with Denis Caillaux, UNICEF representative in Vientiane.
6. *Lao English Dictionary*, Allen D. Kerr, Catholic University of America Press, Washington, D.C., 1972.
7. Chao Thao story in the next section is a classic example of this. Another case is the bogus "yellow rain" account told by Captain Nguyen Quan, a Vietnamese military defector. For over two years former Air Force colonel, Dr. Amos Townsend, and U.S. Embassy staff in Bangkok, interviewed Quan. He detailed "gassing" techniques allegedly used by Vietnamese military. After emigration refusals from both the U.S. and Canada, Quan suddenly repudiated his "yellow rain" story in a September 11, 1982 letter to Townsend: "my hope in coming here (U.S. Embassy in Bangkok) was to be able to emigrate to a third country. Consequently they promised that my family and I would be allowed to go to the U.S. if I worked with them." Quan claims his "contribution to the Free World" was supposed to be "in exchange for freedom and resettlement. I have received nothing in return. Therefore, from now on I prefer not to talk about the Chemical Warfare subject any longer." Quan is one of two defectors cited by USG reports. For other such accounts see chapter 3 of *The Yellow Rainmakers* by Grant Evans, Verso Editions, London, 1983.
8. We requested visits to Ban Done, Ban Son, Muang Hom and Muang Cha, all in northern Vientiane Province, and to several minority villages in Xieng Khouang Province. Because of the lack of passable roads in Laos and the prohibitive costs of helicopter transport, we were unable to visit Muang Cha. And on the way to Ban Son our four-wheel drive vehicle broke down.
9. *The Politics of Heroin in Southeast Asia* by Alfred W. McCoy and Cathleen B. Read (Harper Colophon, 1972) provides a detailed account of Long Phor's history and opium production. Xua Chang Her's account crosschecks with that account. In 1961, "Meo (Hmong) officers visited the village, offering money and arms if they joined with Vang Pao and threatening reprisals if they remained neutral."
10. We were unable to follow our regular interview pattern here as Xua Chang Her immediately asked them to tell us about the "yellow poisons" they have seen.
11. Hmong in the U.S. often say they believe the "yellow rain"

because they saw it on ABC-TV's 20/20 program. (*Los Angeles Times* interview with Roger Rumpf, January 25, 1982).

12. *Use of Chemical Agents in Southeast Asia Since the Viet Nam War*, Hearing before House Sub-committee on Asian and Pacific Affairs, December 12, 1979, pp. 67-76. State Department officials Ed McWilliams and Tim Carney made these Lao interviews.

13. "Dignity, National Identity and Unity," by Jacqui Chagnon and Roger Rumpf, *Southeast Asia Chronicle*, No. 73, June 1980.

14. Later we discovered two refugee accounts citing the Nam San which flows through Muang Hom district. See December 1982 United Nations Report to the General Secretary on *Chemical and Bacteriological Weapons*, pp. 101-102.

15. See "Education: The Prerequisite to Change in Laos," by Jacqui Chagnon and Roger Rumpf, *Contemporary Laos*, St. Martins Press, New York, 1982.

16. *Operation Ranch Hand; the Air Force and Herbicides in Southeast Asia, 1961-71*, by William A. Buckingham, Jr., Office of Air Force History, Washington, D.C., 1982.

17. Testimony before Senate Subcommittee on Arms Control, Oceans, International Operations and Environment, Nov. 10, 1981, p. 31.

18. *Chemical Warfare in Southeast Asia and Afghanistan*, (Haig Report), March 22, 1982, U.S. State Department; Updated November 1982 (Shultz Report).

19. Personal notes and "Report of Visit to Resettled Persons in Xieng Khouang, March 31-April, 1979," by AFSC representatives Jacqui Chagnon and Roger Rumpf and Mennonite Central Committee representatives John and Beulah Yoder.

20. See Evans, *The Yellow Rainmakers*, p. 170. "A Vang Pao soldier I interviewed at the end of 1979 claimed to have been in a battle at Muong Om at almost the same time as the delegation and that chemical weapons had killed 2,000 people in the encounter."

21. For over two years this desperately needed project was stalled. Besides the normal bureaucracy, a high-ranking UN source told us, "the U.S. government was applying enormous pressure to stop several projects especially the Muang Cha one." Ironically, Hmong would benefit most from these projects.

22. The average Lao family has 6.5 members. If one dies that is 16 percent of the members are lost. If three die, 45 percent are lost.

23. Haig Report, March 22, 1982.

24. "Minority Politics and the Hmong," *Contemporary Laos*, St. Martins Press, New York, 1982.

25. See Haig and Schultz Reports.

26. Haig Report, Letter signed by Haig.

27. Evans, *The Yellow Rainmakers*.

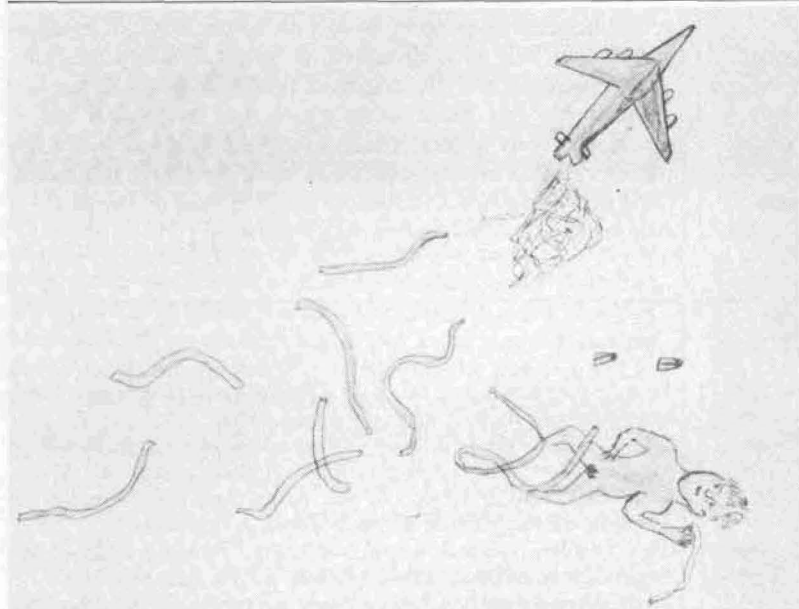
28. *Washington Post*, March 13, 1983.

29. "Comparison of Yellow Rain and Bee Excrement," paper presented by Dr. M. Meselson, Dr. P. S. Ashton, Dr. J. W. Nowicke, Dr. J. P. Robinson to the American Association for the Advancement of Science, May 31, 1983. See also *New York Times*, June 21, 1983 for a discussion of the scientific arguments.



# Myths, Fears, and the Unknown

Imagination readily offers explanations for the unknown, especially in Laos.



"I will explain about this kind of poison which I know about and which I saw. This kind of poison was in long, long lines. The planes dropped it on the forests and in the hills. If it was dropped on the ricefield and touched the rice, the rice would die. A person who picked it up would become very hot. And if it fell on people who didn't know what it was, they would die. Many people, most of them children aged eight or ten years, didn't know."

*This picture and explanation were provided by a 37-year-old man in a refugee camp near Vientiane in 1970. The "long lines" of "poison" he referred to were strips of foil dropped by American planes to jam Pathet Lao anti-aircraft surveillance. They had no toxic qualities.*

Fear and disease are the biggest problems for Hmong today. People, for example, are afraid to send their children away to school. *Chao Fa* resistance forces scare people: if their children leave to study in the Soviet Union or Vietnam and the parents flee to Thailand, they will be separated. Hmong also have many diseases. Ninety-nine percent of them have constant malaria. Enlarged livers and diarrhea are common. This year we have an outbreak of spinal meningitis and something similar to diphtheria.

That is how a middle-aged Hmong educated by foreign missionaries described his people's problems.<sup>1</sup>

In Laos more than the usual myths and rumors arise out of fears and the unknown. Consider these:

- Upon our 1983 arrival in Vientiane, Lao and foreigners alike insisted upon telling us about fish dying in the Mekong River near the southern town of Pakse. A medical student claimed that all the fish were dying, and 30 people had died

as well. A ranking Lao official asserted that eight people had died along with hundreds of farm animals. A Western diplomat suggested that "yellow rain," used on problematic minorities in the southern provinces, had flowed into the Mekong River and killed the fish. Finally we asked two different sources, a leading Lao doctor and a Lao scientist, who were working on the official investigation. Two kinds of fish, they said, had died from what seemed to be a bacterial epidemic, since sick fish treated with penicillin recovered.

- Refugees in Ban Vi Nai Camp recently circulated the myth that Americans eat Hmong babies. Some Hmong refugees were so frightened by it that they refused to go to the United States, a foreign refugee worker told us in 1983. The story came from their relatives in the United States.

- A long-time Communist cadre and 30-year war veteran swears he saw a huge dragon in the Nam Ngum Lake. He vividly described its spiny-backed features, size and color. It resembles dozens of

other stories we heard about "dragons in the Mekong River."

Fears and myths can also hamper medical treatment. A Canadian CBW investigation in Ban Vi Nai Camp found Hmong "still wary of doctors" and preferring Hmong shamans.<sup>2</sup> In California, health care among refugees is "a pressing problem," says a refugee coordinator. Hmong "have to overcome a lot of fears and lack of knowledge" about Western health practices.<sup>3</sup>

In Hmong culture there are definite links between illness and the supernatural. A recent study on Hmong in the U.S. found "All human illness... was explained either directly by soul-loss or demonic possession, or indirectly, by an ill-advised or inopportune disturbance of a spirit's abode, or the wrathful punishment of an ancestral spirit for social impropriety..." The mediator between the human and spiritual realms is the shaman.<sup>4</sup> Although the Lao government discourages spirit worship, it continues in local villages. When asked if we could photograph and record a chanting Hmong shaman, Hmong village leaders politely said no.

Political-spiritual cults are common throughout Hmong history. Today within the Hmong resistance a cult called *Chao Fa* (King from Heaven) has emerged. To entice followers it combines political resistance, supernatural powers and historical legends. A Lao Hmong told us the cult gets its name from *Chao Fa Pat Chay* who led a 1919 Hmong rebellion against the French. The current *Chao Fa* of the resistance allegedly uses magic to protect resistance fighters from bullets.

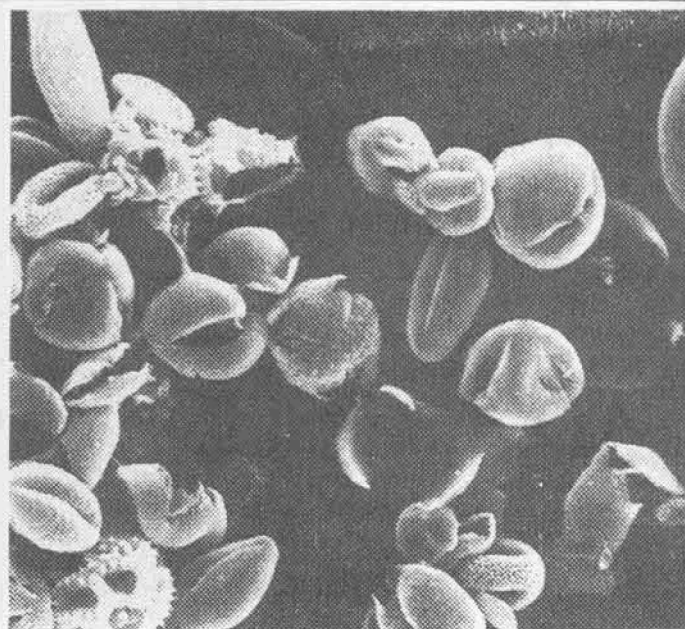
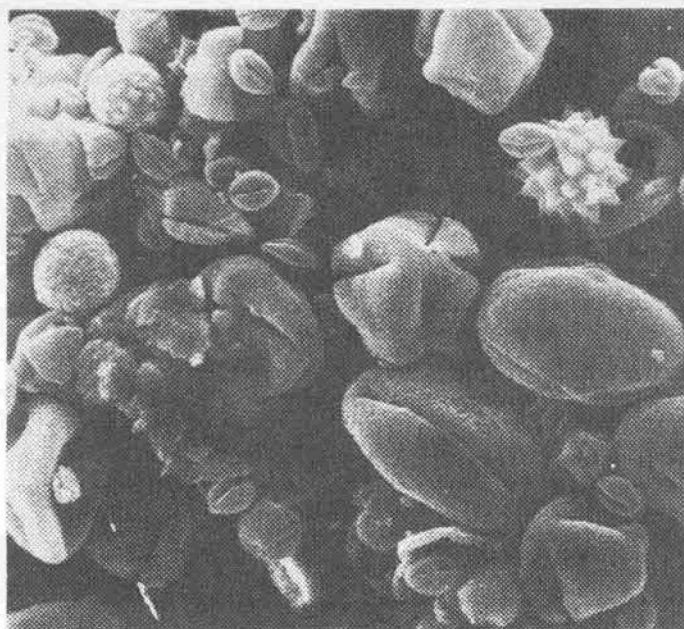
Out of every culture's fears, rumors and myths come tales to explain the unexplainable and know the unknown. Consider the rumors current in the United States about AIDS. Only a thorough scientific search for the "yellow rain" can decipher what is a fact and what is fiction. □

## Notes:

1. For more details on diseases in Laos, see Donald Whittaker, *Area Handbook on Laos*.
2. *An Epidemiological Investigation of Alleged CW/BW Incidents in S.E. Asia*, Prepared by Directorate of Preventive Medicine Surgeon General Branch National Defence Headquarters Ottawa, page 5.
3. *New York Times*, "Try yet Again in California" June 17, 1983.
4. George Scott, Jr., "A New Year in a New Land: Religious Change Among the Lao Hmong Refugees in San Diego" *The Hmong in the West*, editors Bruce Downing and Douglas Olney, University of Minnesota, 1982, p. 66.

# "Yellow Rain" and the Chemical Warfare Threat

Arthur H. Westing and Lloyd G. Williams



The official evidence that chemical warfare is occurring in Laos is not scientifically acceptable proof of anything.

Chemical agents have been used to harass, incapacitate, and kill throughout military history. Toxic fumes were used in India as early as 2000 BC, and there are other documented uses of chemicals in battle before the birth of Christ. During the Middle Ages, defenders of Belgrade burned rags dipped in an alchemical mixture to produce a toxic cloud as a shield against Turkish attackers. In the nineteenth century, the British used artillery shells filled with picric acid during the Boer War. There are other early examples.

*\*Abridged by permission from Ambio 12:5 (1983). Ambio is the journal of the Swedish National Academy of Sciences. Arthur H. Westing is an internationally known expert on herbicides and the effects of chemical warfare. Among his books are *Ecological Consequences of the Second Indochina War and Weapons of Mass Destruction and the Environment*. He is currently a senior research fellow at the Stockholm International Peace Research Institute and a professor of ecology at Hampshire College. Lloyd G. Williams is an associate professor of chemistry at Hampshire College and has served on several Massachusetts state agencies concerned with pollution.*

Although modern technology has greatly increased the potential scope and impact of chemical warfare (CW), chemical weapons have been used only twice on a large scale in this century: during the First World War and again during the Second Indochina (Vietnam) War. In World War I, both sides used large amounts of non-lethal and lethal chemical agents—some 100 million kilograms, all told—including chlorine, phosgene, and mustard gas. Over one million casualties, including perhaps 100,000 fatalities, were attributed to the use of these chemicals. During the Second Indochina War, the United States used several herbicides (principally so-called Agent Orange) and a non-lethal anti-personnel agent (the riot-control gas CS) in South Vietnam, together also about 100 million kilograms.<sup>1</sup> The herbicides were used for forest and crop destruction in order to deny key areas to National Liberation Front forces. Anti-personnel gas was used both to drive the NLF troops and supporters from hiding places and temporarily to deny them access to certain areas.<sup>2</sup>

World outrage following World War I led to the wide adoption of the Geneva Protocol of 1925, which prohibits the use of chemical and biological agents in international war. The prohibition is not absolute, however, since about 40 percent of the parties, including the United Kingdom, France, the Soviet Union, China, and the United States (which did not sign the agreement until 1975), took it upon themselves to reserve the right to retaliate in kind if attacked with such weapons. In addition, the United States unilaterally maintains that this Protocol does not apply to herbicides or non-lethal gases.<sup>3</sup> Nonetheless, the United States is the only country known to maintain stockpiles of chemical weapons, while it is assumed that the Soviet Union and France also maintain such stockpiles.<sup>4</sup>

Now, however, chemical and biological weapons have become the object of considerable attention and concern. The



United States has repeatedly charged that the Soviet Union or its proxies have covertly used lethal chemical toxins in Laos, Kampuchea, Afghanistan, and, most recently, in Thailand. The charges are summarized most authoritatively in two U.S. Department of State Special Reports.<sup>5</sup> They have been denied by the Soviet Union as well as by Viet Nam, Laos, and Afghanistan. While the sheer volume of evidence presented by the State Department has convinced many that the charges are accurate, inconsistencies in the U.S. evidence together with the results of investigations by the United Nations, Canada, Australia, and others have left some observers skeptical. What are the facts?

**T**he government of Afghanistan has been engaged in a civil war with Islamic insurgents since 1978. The Soviet Union has supported the government with troops since 1979. The United States has charged that, beginning as early as six months before the December 1979 Soviet entry into Afghanistan and on a number of occasions since, harassing, incapacitating, and lethal chemical agents have been used against the rebels. These charges are based primarily on reports from rebels and refugees in Pakistan, who describe attacks with rockets, bombs, and sprays. Victims of these attacks claim to have experienced lacrimation, coughing, loss of motor control, and unconsciousness; some cases of death have also been reported. These symptoms suggest the use of mustard, phosgene or phosgene oxime, and nerve agents. Other symptoms have included blistering of the skin, nausea, and vomiting. These symptoms cannot be attributed to any previously known chemical agent. The United States has asserted that at least 3,137 Afghans have been killed in chemical attacks.<sup>6</sup>

Despite the large number of case histories presented by the U.S. Department of State, surprisingly little physical evidence has yet been put forth to support the charges of chemical warfare in Afghanistan. Two Soviet gas masks, allegedly obtained from Afghanistan in 1981, have been introduced by the State Department, but the manner in which they were obtained is unclear and their authenticity is thus difficult to verify.

The United States has also charged that lethal chemical agents have, with Soviet knowledge and assistance, been used in both Laos and Kampuchea. In Laos, it is alleged that the Lao government, with the assistance of Vietnam, has attacked members of the Hmong hilltribes with poison gas. In Kampuchea, irritating and lethal gases have reportedly been used by the Vietnamese and the Heng Samrin government against both Pol Pot and anti-communist Khmer forces. According to the U.S. Department of State, chemical attacks have resulted in over 6,395 deaths in Laos and 1,046 deaths in Kampuchea.<sup>7</sup>

These charges are again based largely on reports from refugees together with some testimony from medical personnel and journalists working in the areas of the alleged attacks. Whereas early reports described several modes of delivery and several different agents, including harassing (riot-control) agents, incapacitating agents, nerve gas, and other lethal agents, recent U.S. charges have focused on "Yellow Rain." The "Yellow Rain" has been described as a colored cloud (usually yellow, but sometimes orange, red, or another color) dispersed from slow, low-flying (but sometimes high-flying) aircraft or helicopters. The "cloud" is said to sound like raindrops when falling on rooftops or vegetation. Those exposed to "Yellow Rain" reportedly experience a variety of symptoms including itching and blistering of the skin, nausea, diarrhea and vomiting, often with blood, internal hemorrhaging, shock, and in some cases death. This combination of symptoms would not be produced by any single previously known chemical agent, including mustard gas or nerve gas.

**I**n September 1981, the US Department of State announced that it had identified the toxic agent in "Yellow Rain" as a mixture of trichothecene mycotoxins.<sup>8</sup> Trichothecenes produced by *Fusarium* and other fungi have been identified as the toxic agent in fatal toxicosis associated with the consumption of moldy grain by both animals and humans. Cases of disease resulting from the consumption of moldy grain have been reported in the United States, Japan, the USSR, and elsewhere. Symptoms of the affliction, known as alimentary toxic aleukia (ATA), include skin inflammation, diarrhea and vomiting, hemorrhaging, leukopenia (depressed white blood cell count), respiratory failure, and in severe cases death. In many of these instances, contamination by *Fusarium* was confirmed, and in some trichothecenes were isolated. Although there are over 40 naturally occurring trichothecenes, those most commonly found in contaminated grains are: T-2 toxin, diacetoxyscirpenol (DAS), nivalenol, and deoxynivalenol (vomitoxin).<sup>9</sup>

According to Richard Burt, Director of the U.S. Department of State Bureau of Politico-Military Affairs, trichothecene mycotoxins were identified as the toxic agent in "Yellow Rain" on the basis of symptomatology and the discovery of trichothecenes in samples of plant material claimed to have been taken from a village in Kampuchea said to have been subjected to a chemical attack.<sup>10</sup> Analysis by University of Minnesota plant pathologist Chester Mirocha of this plant material, together with a sample of water said to be from the same area and rock scrapings reported to be from Laos, showed the presence of trichothecenes. Analyses of blood and tissue samples subsequently collected from victims of alleged attacks have shown

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Particles large enough to produce the sound of raindrops would be too large to be inhaled.

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the presence of DAS and T-2 as well as HT-2, a known metabolite of T-2 toxin. Analyses of the two gas masks from Afghanistan also reportedly revealed the presence of DAS, T-2, and other mycotoxins.

The match between the symptoms of ATA and those experienced by victims of attacks, described by Burt as a "perfect fit," coupled with the discovery of trichothecenes in samples said to be from the affected areas, would seem to provide concrete evidence for the use of lethal chemical weapons in Southeast Asia and Afghanistan. This evidence has, however, been viewed by many as much less than the "smoking gun" claimed by Burt. Several questions have been raised about the reliability of the samples as well as the interpretation of their analysis. Independent investigations by the United Nations and government agencies in Canada and Australia have supported the U.S. Department of State charges only in part, if at all. In March 1982, the State Department admitted that "We still don't have the kind of hard, direct evidence that would remove all doubts."<sup>11</sup> Despite the introduction of more "evidence," many scientific observers still regard the case as unproven.

The match between the symptoms of ATA and the symptoms reported by those exposed to "Yellow Rain" may not be as perfect as Burt claimed. Most of the information on trichothecene poisoning in humans is based on oral intake of contaminated food which contained whole cultures of *Fusarium* and possibly fungal toxins other than trichothecenes, not on ingestion of pure trichothecenes or even purified mixtures of the toxins. These studies may not be at all applicable to toxicosis

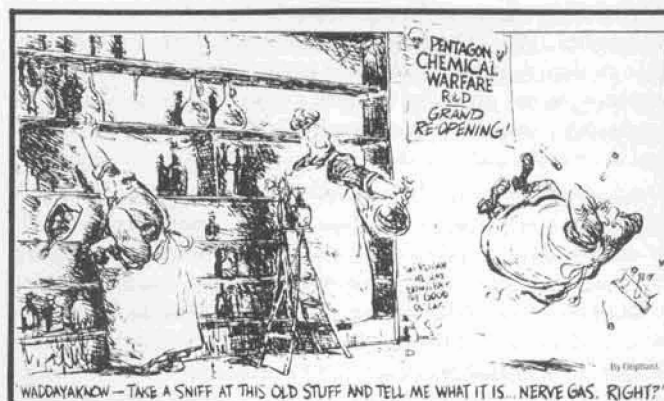
resulting from contamination with mixtures of trichothecenes (possibly containing additional CW agents). In addition, the onset of symptoms following the alleged attacks is described to be rapid, whereas symptoms of ATA usually develop more slowly. In fact, Dr. Bruno Schiefer, a Canadian toxicologist who visited Thailand to investigate the possible use of mycotoxins, concluded that

Many features of "yellow rain," as described in eye witness reports . . . , are rather suggestive of trichothecene mycotoxicosis. However, when comparing symptoms and other findings of Alimentary Toxic Aleukia (ATA) and Stachybotryotoxicosis . . . with the features described by witnesses of the alleged chemical attacks, it is evident that there are more similarities between Stachybotryotoxicosis and "Yellow Rain" than between ATA and "Yellow Rain."<sup>12</sup>

Stachybotryotoxicosis is a toxicosis caused by substances which have not been identified in the CW samples. These are macrocyclic trichothecenes, principally verrucarins, roridin, and satratoxins.

The question of symptomatology is further complicated by uncertainty over the route by which the toxins entered the bodies of presumed victims. Whereas inhalation is a likely route for contamination by CW agents, particles large enough to produce the sound of raindrops (as described for "Yellow Rain") would be too large to be inhaled. Skin absorption or oral ingestion are possible routes, but the lethal dose via these routes is not known. The oral lethal dose for pure T-2 toxin in monkeys is of the order of 0.5-1.0 mg/kg.<sup>13</sup> Based on this, a 50 kg person would have to ingest over 140 ml or 140 g of the material found by Mirocha on the leaf and stem sample in order to receive a lethal dose.<sup>14</sup> It is noteworthy that, as Schiefer points out, Stachybotryotoxicosis in humans "is associated with inhalation and percutaneous absorption of the toxins."<sup>15</sup> However, no lethal doses are given and, as noted above, the relevant toxins have not been detected.

Also of importance is the U.S. Department of State claim that trichothecenes do not occur naturally in the area under question. This conclusion was based, in part, on the lack of mention of trichothecenes in Southeast Asia in a search of approximately 3,000 items in the scientific literature.<sup>16</sup> In fact, *Fusarium* and other relevant fungi, as well as the trichothecenes in question, have been found in many temperate and tropical parts of the world, including Indochina.<sup>17</sup> Studies conducted in India and Brazil have shown that trichothecenes could translocate from the soil into a plant,<sup>18</sup> suggesting that the trichothecenes which were said to have been detected in Indochina could have originated from fungi growing naturally in the soil. In addition, the varying amounts of the individual toxins found in the samples from Laos and Kampuchea are not consistent with a single, artificial source of these compounds, such as a CW agent. In particular, the differing relative amounts of T-2 and DAS in the vegetation and rock samples suggest either a natural source or several different agents containing mycotoxins. On the other hand, State Department analyses of vegetation, soil, water, maize, and rice from nearby areas in Kampuchea which had not been subjected to the alleged attacks were reported not to show the presence of trichothecenes.<sup>19</sup> Water and rock surfaces are poor media for the growth of fungi and the presence of trichothecenes in the water sample and rock scrapings would seem to support the hypothesis that they were not derived from a natural source, although they could conceivably have leached out of fungi or plants. Nevertheless, the possibility that the samples were either contaminated with *Fusarium* or other fungi or that trichothecenes in



the samples were there naturally has certainly not been ruled out.

The reported presence of HT-2 in samples of blood and tissue from victims of alleged attacks is particularly perplexing. The samples were drawn 18 days after the attack.<sup>20</sup> However, in animal experiments, trichothecene toxins have been shown to be rapidly eliminated via the kidneys. In experiments involving chickens, 80 percent of an orally administered dose of T-2 was eliminated in the excreta within 48 hours.<sup>21</sup>

Further questions concerning the presence of T-2 and HT-2 in at least some tissue samples have been raised by Canadian researchers. The U.S. Department of State has reported finding DAS, T-2, and HT-2 in tissue samples taken from a Kampuchean who died in a Khmer Rouge hospital allegedly as the result of an attack near Toul Chrey.<sup>22</sup> A team of Canadian epidemiologists concluded, on the basis of symptomatology, that this incident was not mycotoxin-related and that "there is

## The State Department's decision to pursue the issue before having obtained conclusive evidence is perplexing.

a conflict between the analytical results and the epidemiological data."<sup>23</sup> The epidemiologists note that the cause of death in this case is likely to have been blackwater fever, a complication of malaria; they further conclude that

The only group of agents which fit the symptomatology exhibited by the casualties from Toul Chrey is the incapacitating agents. All other classes of agent can be eliminated, including mycotoxins unless mixtures of mycotoxins can produce the same symptoms as incapacitating agents.<sup>24</sup>

There are other questions and inconsistencies too numerous to address here. Those mentioned do, however, serve to illustrate the major points of contention.

Uncertainty over the correlation of symptoms with exposure to trichothecenes, over the reliability of the samples, and over the interpretation of the presence of trichothecenes in the samples have led many to question the case presented by the U.S. Department of State. In December 1980, the Secretary-General of the United Nations appointed a panel of experts to investigate the alleged use of chemical weapons. The group reviewed the available evidence, surveyed the existing literature, and interviewed refugees, physicians, and others in Thailand. It did not, however, conduct on-site investigations in



Afghanistan, Laos, or Kampuchea. In its initial report, issued November 1981, the panel concluded that, based on the available evidence, it was "unable to reach a final conclusion as to whether or not chemical warfare agents had been used."<sup>25</sup> A final report, issued in December 1982, after additional evidence had been reviewed, concluded:

Many of the medical signs and symptoms reported by the alleged victims and medical personnel, referred to in the submissions, could be explained by trichothecene poisoning whether due to natural occurrence or other causes. However, because of the vagueness of the symptomatology presented in most of the reports, explanations other than the use of trichothecenes cannot be excluded.<sup>26</sup>

The United Nations panel did not, however, rule out the possibility that chemical weapons of some sort had been used.

While the Group could not state that these allegations had been proven, nevertheless it could not disregard the circumstantial evidence suggestive of the possible use of some sort of toxic chemical substance in some instances.<sup>27</sup>

Finally, it is possible that the basis for the "Yellow Rain" allegations is not a CW agent at all, but rather pollen of local origin undergoing natural dispersal, some of it perhaps a bit moldy.<sup>28</sup>

Certainly the charges presented by the U.S. Department of State are serious. The use of chemical weapons by the Soviet Union or Vietnam, if proven, would constitute a serious violation of two highly respected treaties, the Geneva Protocol of 1925 and the Bacteriological Weapons Convention of 1972.<sup>29</sup> Since these treaties are not self-enforcing, the mobilization of world opinion is one of the major sanctions which can be used against violators. The Soviet Union has never been proven to be in violation of an arms control treaty to which it is a party, and it is difficult to establish a motivation for its doing so in this case. The small military advantage would most certainly be outweighed by the condemnation of the international community and by the almost certain damage such a revelation would do to arms limitation negotiations which the Soviet Union is anxious to consummate.

Still, the conclusion of the UN panel of experts—that it is possible that some sort of toxic chemical substances have been used in some instances—warrants further investigation. The unsubstantiated and often conflicting claims made by the U.S. Government have not been constructive in bringing this important matter to light. Humanitarian concerns would best be served through resolution of the outstanding questions by impartial groups of scientists. Sites of alleged attacks should be visited to conduct first-hand interviews and collect physical evidence. Samples should be analyzed using proven methods, and appropriate replicates and controls must be included. Finally, the work of the Canadian epidemiologists should be extended in an effort to resolve the discrepancies between the analytical and epidemiological evidence.

The U.S. Department of State has drawn a good deal of criticism for both the substance and the timing of its charges. Its decision to pursue the issue before having obtained conclusive evidence is perplexing. The impetus for the United States to pursue its allegations of CW in such a vigorous fashion may rest on the renewed interest in chemical weapons within the United States itself. U.S. Department of Defense analysts and some others have perceived a growing gap between the level of CW preparedness in the United States and that in the Soviet Union. Part of the motivation for bringing the charges now

might be, as described by Amoretta Hoeber and Joseph Douglass, two leading CW proponents, to produce a "major change in attitude toward chemical munitions."<sup>30</sup> This change in attitude would presumably be necessary both at home and among our NATO allies since there is a growing movement in Europe against the stockpiling of chemical or biological weapons. The Federal Republic of Germany, Norway, and several other nations have already unilaterally renounced the possession and use of chemical as well as biological weapons, even as a retaliatory measure.

The United States has not manufactured poison gas munitions on a large scale since their production was halted in 1969. Now, however, there is pressure from the Pentagon and the White House to begin production of the new "binary" nerve gas

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The volume of the State Department's evidence has convinced many, but it is inconsistent.

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munitions. This buildup of U.S. chemical warfare capacity, justified in large part as a response to an assumed Soviet offensive capability, is also claimed to be necessary to maintain a flexible military posture in Europe and as a bargaining chip in future arms control negotiations. A factory to manufacture a new generation of nerve gases is now under construction in Arkansas, and new classes of shells, bombs, and cruise missiles are being designed for their delivery. These preparations were given official sanction when the President formally notified the US Congress in February 1982 that "the production of lethal binary chemical munitions is essential to the national interest."<sup>31</sup>

Development of a US offensive chemical warfare capability is difficult to rationalize, however, even on a military basis. These weapons provide little strategic advantage and the consequences of their use are potentially disastrous. As noted by Hoeber and Douglass:

One of the more disconcerting aspects of chemical warfare is that the greatest advantages and incentives for the use of chemicals exist when there is a serious asymmetry in chemical warfare capability between the two opposing combatants.<sup>32</sup>

Against a prepared opponent, chemical weapons offer little or no sustained advantage since the side initiating the CW must be prepared to fight encumbered by protective equipment. Thus, whereas research into defensive capabilities such as protective clothing and defensive training may be prudent, production of munitions is difficult to justify.

The United States has accused the Soviet Union of secretly employing either directly or by proxy an array of harassing, incapacitating, and lethal chemical agents, including toxin agents of fungal origin, in four separate countries. The evidence presented by the U.S. Department of State is, however, at best unconvincing. The accusations have been denied by the Soviet Union, Viet Nam, and Laos and have failed to convince any other nation (including NATO members) or international body.

Chemical weapons—so potentially destructive of man and nature—are militarily useful only against ill-equipped armies, civilian populations, or agricultural or natural ecosystems. The full impact of the use of chemical weapons is unknown but potentially devastating.<sup>33</sup> In Europe, while military personnel would be protected, the civilian population, livestock, and

wildlife would not. Use of chemical weapons near population centers, miscalculation, or even changes in weather or wind direction could produce heavy civilian (and animal) casualties. The use of these weapons against Third World nations could be even more devastating since not even the troops in these countries are generally trained or equipped for chemical warfare. It is in exactly this type of asymmetric situation that chemical weapons are most likely to provide a significant military advantage, and are thus most likely to be used.

It is thus to our dismay that following a decade of disinterest in this class of weapons the United States is again tooling up for a new generation of lethal gases and their delivery systems. Negotiations were begun in 1976 under United Nations auspices to formulate an acceptable treaty that would prohibit the possession of chemical weapons, an effort to which the United States and the Soviet Union committed themselves jointly in 1978. Bilateral negotiations died out in 1980 through U.S. reticence to continue and have not been resumed despite Soviet willingness to do so. We are forced to conclude that U.S. actions may have been motivated by a perceived military attractiveness of chemical weapons and thus perhaps by a desire to employ them in some future conflict. No other NATO ally with the apparent exception of France includes chemical weapons in

its arsenal, and several have actively renounced them.

In view of the gravity of the charges that chemical weapons have been used in Southeast Asia and Afghanistan and the conflicting evidence that has been presented, it is important that these allegations be resolved through independent inquiry. However, it is equally important that the United States recognize that in the highly unlikely event that we are attacked with chemicals we do not have to retaliate in kind. It is time that we aligned ourselves with world opinion and renounced *all* chemical weapons as we have already renounced biological and chemical toxin weapons. We must accept the Geneva Protocol of 1925 without reservation (i.e., without the unnecessary and even counterproductive reservation allowing us to retaliate in kind) as have more than 50 other nations to date. We must negotiate a chemical weapon convention comparable to the Bacteriological Weapon Convention of 1972 which prohibits possession of any chemical weapon, whether lethal to humans or not. We must retrieve our overseas chemical weapon stockpiles from the Federal Republic of Germany to the east and Johnston Island to the west. And we must destroy these together with our large stockpiles at home. Only in these ways can we hope to help protect humans and nature from such unwelcome and unnecessary insults. □

## Notes:

1. Active ingredients in the chemical weapons used in Indochina constituted about 65,000 kilograms. See Arthur H. Westing, *Ecological Consequences of the Second Indochina War* (Almqvist and Wiksell, Stockholm, 1976).
2. Although the gas used is non-lethal, it was often used in conjunction with other weapons with deadly results.
3. *Arms Control and Disarmament Agreements: Texts and Histories of Negotiations* (US Arms Control and Disarmament Agency, Washington, 1982).
4. J. P. Perry Robinson, "Chemical Warfare Capabilities of the Warsaw and North Atlantic Treaty Organizations: An Overview from Open Sources," in *Chemical Weapons: Destruction and Conversion*, edited by Jozef Goldblat *et al.* (Taylor and Francis, London, 1980), pp. 9-56.
5. *Chemical Warfare in Southeast Asia and Afghanistan* (U.S. Department of State, Special Report No. 98, Washington, 22 March 1982). *Chemical Warfare in Southeast Asia and Afghanistan: An Update* (U.S. Department of State, Special Report No. 104, Washington, November 1982).
6. *Ibid.*
7. *Ibid.*
8. Walter J. Stoessel, Jr., "Reported Use of Chemical Weapons," *U.S. Department of State Bulletin*, 81 (2056), 79 (1981).
9. S. V. Pathre and C. J. Mirocha, "Trichothecenes: Natural Occurrence and Potential Hazard," *Journal of the American Oil Chemists' Society*, 56, 820-823 (1979).
10. Richard Burt in "Yellow Rain," Hearing before the U.S. Senate Committee on Foreign Relations Subcommittee on Arms Control, Oceans, International Operations and Environment, 10 November 1981 (U.S. Government Printing Office, Washington, 1982), pp. 12-18.
11. Philip Taubman, "U.S. Offers Report on Use of Toxins by Soviet Forces," *New York Times*, 23 March 1982, pp. A1, A15.
12. H. B. Schiefer, "Study of the Possible Use of Chemical Warfare Agents in Southeast Asia" (University of Saskatchewan, 1982). See page 8.
13. C. Rukmini, J. S. Prasad, and K. Rao, "Effects of Feeding T-2 Toxin to Rats and Monkeys," *Food and Cosmetics Toxicology*, 18, 267-269 (1980).
14. Based on a lethal dose of 0.5 mg/kg. The level of trichothecenes used in the calculation is the total of all those found in the sample.
15. H. B. Schiefer, *op. cit.*
16. *Chemical Warfare in Southeast Asia and Afghanistan*.
17. Francis Bugnicourt, *Les Fusarium et Cylindrocarpus de l'Indochine* (Paul Lechevalier, Paris, 1939). [Canadian investigators have also isolated trichothecene-producing fungi from samples collected near the Thailand-Kampuchea border. See H. B. Schiefer, Canadian submission to the U.N. A/37/308, 1982—Ed.]
18. Bruce B. Jarvis, Jacob O. Midiwo, David Tuthill, and George A. Bean, "Interaction Between the Antibiotic Trichothecenes and the Higher Plant *Baccharis megapotamica*," *Science*, 214, 460-462 (1981).
19. *Chemical Warfare in Southeast Asia and Afghanistan*.
20. *Ibid.*
21. Takumi Yoshizawa, S. P. Swanson, and C. J. Mirocha, "T-2 Metabolites in the Excreta of Broiler Chickens Administered <sup>3</sup>H-labeled T-2 Toxin," *Applied and Environmental Microbiology*, 39, 1172-1177 (1980).
22. *Chemical Warfare in Southeast Asia and Afghanistan: An Update*.
23. G. R. Humphreys and J. Dow, "Epidemiological Investigation of Alleged CW/BW Incidents in SE Asia," (Directorate of Preventive Medicine, Surgeon General Branch, National Defence Headquarters, Ottawa, 11 August 1982).
24. *Ibid.*, p. 8-14.
25. Esmat A. Ezz, Edward E. Ambeva, Nestor C. Castillo, and Humberto Guerra, *Report of the Group of Experts to Investigate Reports on the Alleged Use of Chemical Weapons* (UN General Assembly Document No. A/36/613, New York, 20 November 1981).
26. *Ibid.*, p. 49.
27. *Ibid.*, p. 50.
28. Hugh D. Crone, *Examination of Yellow Rain Specimens Received at MRL April 1982* (Department of Defence Materials Research Laboratory, Canberra, August 1982).
29. The Bacteriological Weapon Convention of 1972 *inter alia* prohibits the possession of toxin weapons. The Soviet Union and Vietnam are party to both the Geneva Protocol; the BW Convention already has more than 90 parties.
30. Amoretta M. Hoeber and Joseph D. Douglass, Jr., "Neglected Threat of Chemical Warfare," *International Security*, 3 (1), 55-82 (1978-79).
31. President Ronald Reagan, Letter to the Speaker of the U.S. House of Representatives, The White House, Washington, 8 February 1982.
32. Hoeber and Douglass, *op. cit.*, p. 78.
33. Arthur H. Westing, *Weapons of Mass Destruction and the Environment* (Taylor and Francis, London, 1977), pp. 31-48.



# Dioxin: The Persistent Poison

Joel Rocamora

The U.S. government has shown little interest in compensating the Indochinese and American victims of its chemical weapons.

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Five-year-old Hmong boy born with deformed hands and feet. His mother says U.S. planes sprayed "yellow rain" on their land in the 1960s.

Joel Rocamora is co-director of the Southeast Asia Resource Center.

Times Beach, Missouri is a long way from Ma Da forest in Vietnam. Dioxin ties them together.

Dioxin is a lethal compound formed as a by-product of some chemical manufacturing processes, including that of herbicides such as Agent Orange. A draft report by the Environmental Protection Agency (EPA) says that concentrations of dioxin in water of more than 2.1 parts per quintillion—a number followed by 18 zeroes—constitute an unacceptable risk to humans.

The 180 million pounds of Agent Orange that rained down on Vietnam between 1971 and 1975 included 500 pounds of dioxin. The purpose of this massive spraying was to destroy forests and croplands and deny food and cover to Vietnamese liberation forces. Agent Orange was no more successful than B-52's in preventing the Vietnamese victory. But today four million acres and nine million people continue to suffer the effects of Agent Orange.

Ma Da forest, 80 miles northeast of Ho Chi Minh city, was one of the main targets of Agent Orange spraying. It used to be a luxuriant 75,000-acre tropical forest, which provided food, medicinal plants, hardwood, bamboo, latex and other forest products. Today, eight years after the end of the war, it remains a desolate wasteland. The elephants, bears, tigers, deer, snakes, birds, and other animals which inhabited the forest have all died.

Reporting on a visit to a Vietnamese hospital in early 1983, Abe Weisburd (*Guardian*, July 27, 1983) says:

In groups, the delegates visited Tu Du hospital to see children of direct victims of the herbicides, children with twisted and incomplete bodies and brain damage. None of the delegates will ever forget the sight of children, half normal size, lying on their backs unable to move; or others, some 15 years old, who cannot take care of themselves, who have to be washed and dressed and fed chopped-up food because they cannot chew.

When EPA officials found high concentrations of dioxin in the community of Times Beach, Missouri in February 1983, the government took immediate action. It allocated \$33 million to buy homes and businesses in the community and urged residents to move out. In June 1983, dioxin levels up to 1,800 parts per billion, more than six times the level found in Times Beach, were found in St. James, Missouri. Dioxin sites have also been found in New Jersey, New York, and a number of other places.

The raging, nationwide controversy over the danger presented by dioxin has forced the government to respond—but with a highly revealing calculus of concern. The more serious the impact, the larger the number of people affected, the less concern the government has shown.

The \$33 million allotted to buy out the residents of the small community of Times Beach is \$33 million more than has been allotted as compensation for the hundreds of thousands of Vietnam veterans who were more exposed to dioxin than the residents of Times Beach. Between February 1982 and February 1983, veterans made more than 369,000 visits to Veterans Administration (VA) hospitals for Agent Orange-related ailments. More than 16,500 Vietnam veterans have filed compensation claims with the government for a liver disorder, a skin condition, and soft tissue cancer, ailments which have been linked to exposure to dioxin in Agent Orange. All 16,500 claims have been denied.

The VA is actively opposing a bill in the House of Representatives which would make compensation for Agent Orange-related ailments possible. The House bill, which has 167 co-sponsors, contends that there is enough medical evidence to warrant compensation. In June 1983, Dorothy Starbuck, the VA's benefits director, told Congress there is no scientific link between Agent Orange and the three diseases commonly associated with it.

Government opposition to the bill is the latest example of its consistent refusal to accept responsibility for the exposure of hundreds of thousands of Vietnam veterans to dioxin. For years, veterans who so much as mentioned Agent Orange to the VA were labeled as "nuts" or "trouble makers." It was not until 1981, after much public pressure, that VA hospitals started accepting patients with Agent Orange-related ailments.

Massive documentation released as a result of a class-action suit brought by veterans against Dow Chemical Company and other manufacturers of Agent Orange shows that both the government and the chemical companies have known of the danger of dioxin for years. The case is now heading towards trial. But because the government has been released from any liability under the "Feres" doctrine, the veterans have to show that the chemical companies knew more about the toxic effects of dioxin than the government did. The Feres doctrine holds that the military cannot be held responsible for what it does to GIs, no matter how negligent its behavior.

The documents show that Dow, the main supplier of Agent Orange, and other chemical companies knew the toxic dangers of dioxin exposure as early as the mid-1960s. But the companies withheld this information from the government and continued to sell dioxin-contaminated Agent Orange. In one 1967 memo, Dow scientists stated that chloracne, a skin condition related to dioxin exposure, is "usually not disabling, but may be fatal." In 1965, the Dow director of toxicology wrote that dioxin-caused "fatalities have been reported in the literature."

Critical evidence on chemical manufacturers' knowledge of the dangers of dioxin appears to have been destroyed since the issue became public. Studies on dioxin have been conducted since the 1950s by a Pittsburg-based firm, the Industrial Hygiene Foundation. In 1979, one year after the Agent Orange controversy exploded, IHF says it shipped all its research files to



*Rice planted between the stumps of defoliated trees in Minh Hai province, Vietnam, 1980.*

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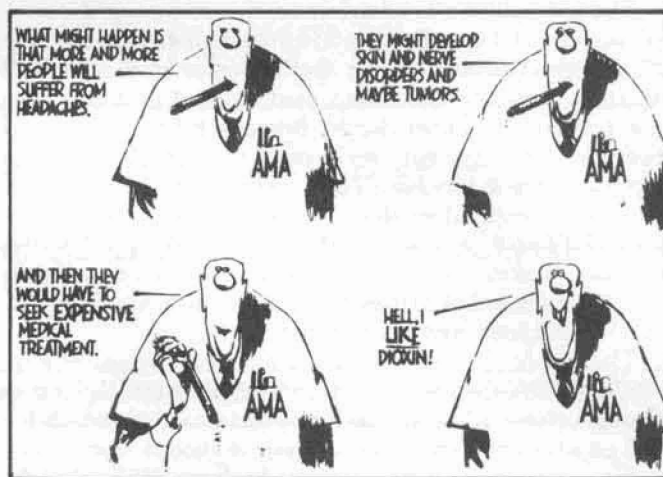


its chemical company clients. No copies were retained, and the companies deny ever receiving them.

Dow and other Agent Orange manufacturers defend themselves against the veterans' suit by claiming that the government knew as much as they did about the dangers of their dioxin-contaminated product. At the same time they continue to insist that dioxin is not really so dangerous. On June 1, 1983, Dow announced a \$3 million, two-year research program that, according to a company official, is aimed as much at dampening public concern as at adding to the body of scientific knowledge about dioxin.

Two other institutions have joined Dow's campaign to counter growing public demands for accountability. In July 1983, the U.S. Air Force released the results of a study of 1,200 men who sprayed Agent Orange in Vietnam. These men have not suffered any Agent Orange-related ailments, the Air Force claims. At its June 1983 convention, the American Medical Association adopted a resolution accusing the media of conducting a "witchhunt" against chemical companies by disseminating "rumor, hearsay, and unconfirmed scientific reports."

Making the government accountable to Vietnam veterans has been a long, uphill battle. Concessions were made only



after tremendous public pressure. Making the government accountable to the Vietnamese, the people who have suffered the most from Agent Orange, has been virtually impossible.

In late 1967, the U.S. Joint Chiefs of Staff reviewed a report saying that Agent Orange spraying was poisoning Vietnamese peasants. The report, prepared by the Rand Corporation at the

## What They Say

### United Nations Group of Experts to Investigate Reports on the Alleged Use of Chemical Weapons

"... while alleged victims and/or eyewitnesses would be in a position to provide firsthand accounts, ... such accounts might be incomplete or distorted for various reasons. ... Many of the medical signs and symptoms reported by the alleged victims and medical personnel. ... could be explained by trichothecene poisoning whether due to natural occurrence or other causes. However, because of the vagueness of the symptomatology presented in most of the reports, explanations other than the use of trichothecenes cannot be excluded. ... In its evaluation of the allegations mentioned in the course of the interviews, the Group noted that some allegations were only supported by scanty circumstantial evidence and that alternative explanations other than the one of chemical warfare agents were possible and, in most of those cases, even likely. ... While the Group could not state that these allegations [concerning, "the use of some toxic material in the area in Laos where the Hmong people live"] had been proven, nevertheless it could not disregard the circumstantial evidence suggestive of the possible use of some sort of toxic chemical substance in some instances." (Report, 1 December 1982).

### Dr. H. B. Schiefer

"The events that are reported to take place at the time of alleged chemical warfare attacks cannot be explained on the basis of naturally occurring diseases. ... Judging on the basis of eyewitness reports it appears that three different types of agents have been employed as warfare agents, one of them being 'Yellow Rain.'" (Report to the Department of External Affairs, Canada, 1982)

### French Foreign Minister

"We have no final proof that chemical armaments have been used but the signs are multiple and converging. Therefore, although we, French, cannot prove that chemical arms had been used in Afghanistan and in other places, we think that we have had enough to be convinced that it has been so." (March 26, 1983)

### Spokesperson, British Embassy, Washington, D.C.

"The British have found nothing; nor have independent hard evidence to offer. The general assessment is that it is occurring." (July 1983, telephone interview with Roger Rumpf)

### Spokesperson, Thai Embassy, Washington D.C.

"The Thai government does not conduct investigations but supports others like the United Nations, Canadians, and United States that come to Thailand to investigate. The Thai government collects samples and sends them to universities but it is too difficult to verify the substances. Even your country finds testing the substances difficult." (July 1983, Telephone interview with Roger Rumpf)

### Spokesperson, Australian Embassy, Washington, D.C.

"The Australian government has not made any statement. There is a review process going on at this moment. It is highly likely that chemical agents are being used but we hedge on whether they are lethal. ... Governments are pushed to make statements because of political concerns often before all the evidence is complete." (July 1983, telephone interview with Roger Rumpf)

### U.S. State Department

"The U.S. Government has concluded from all the evidence that selected Lao and Vietnamese forces, under direct Soviet supervision, have employed lethal trichothecene toxins and other combinations of chemical agents against H'Mong resisting government control and their villages since at least 1976. Trichothecene toxins have been positively identified, but medical symptoms indicate that irritants, incapacitants, and nerve agents also have been employed. Thousands have been killed or severely injured. Thousands also have been driven from their homeland by the use of these agents." (Report to the Congress, March 22, 1982).

request of the Defense Department, was ignored. Spraying continued for another two-and-a-half years.

The Rand report was among the documents recently released in connection with the veterans' suit against Dow Chemicals. Using careful, academic language, the report said:

A significant percentage of our subjects [Vietnamese villagers] indicate a widespread fear of these chemicals as being poisonous to humans. . . . There is considerable evidence. . . . that some of the beliefs regarding the toxicity of chemical agents are based on the actual experiences.

The report said that villagers suffered runny noses, nausea, cramps, diarrhea for several days after exposure, and villagers

## The chemical companies knew the dangers of dioxin in the mid-1960s.

were particularly worried about the effect on infants. "A preliminary investigation showed that under certain conditions, doses approaching lethal levels might conceivably be received by exposed infants."

In a memo on the Rand study to then Secretary of Defense Robert McNamara, the Joint Chiefs of Staff said that the spraying "is an integral, essential and effective part of the total effort in South Vietnam." Not one word was said about the report's warnings about the health effects of Agent Orange.

In a deposition taken in the Dow suit, former commander of U.S. operations in Vietnam, Gen. William C. Westmoreland said he knew little about the herbicides used in the spraying program but considered defoliants to be effective weapons. "This was a standard munition that was issued to us," Westmoreland said. "It's like a 105 shell or an M-16 rifle bullet and it was in the stockpile and we felt it was appropriate to use it in order to accomplish our military mission."

Deputy Surgeon General Murphy Chesney, in explaining the results of the U.S. Air Force study on Agent Orange, was even more blunt in his support of defoliants as a military weapon. Asked to explain the discrepancy between extensive



*Effects of U.S. defoliation in Vietnam.*

Vietnamese studies on Agent Orange and that of the U.S. Air Force, Chesney replied: "Communist physicians are totally unreliable."

"Do I worry as a physician because we use it?" Chesney said. "The answer is, 'No.' I say war is hell. You've got to win it." □



*U.S. soldiers spray herbicide from a spray rig mounted on an armored personnel carrier.*

Thomas Larsen, U.S. Army



## Philippines

**The Philippines will ally itself with the Soviet Union** if the U.S. Congress blocks rental payments for U.S. military bases in the Philippines, President Ferdinand Marcos told a delegation of American Congress people visiting Manila in mid-July. A delegation member called the threat "somewhat implausible," and added that Marcos was "cutting off his nose to spite his face."

Political analysts in Manila and Washington say that Marcos' remarks were directed less at the Congresspeople than at Reagan. Marcos was reportedly irked at being excluded from the itinerary of Reagan's Asian tour in November. Other analysts say that Marcos' remarks indicate that there may be more opposition to the new military bases agreement than had been assumed earlier.

The new bases agreement, covering FY 1984-88, was concluded June 1, surprising opponents of the bases with the speed with which negotiations were finished. It was later revealed that the negotiations, in fact, took 50 days to finish, but had been conducted with absolute secrecy. Under the new agreement, the Marcos regime will receive \$900 million in the next five years: \$475 million in "Economic Support Funds," \$125 million in military grants, and \$300 million in military sales credits.

Aside from being 80 percent higher than the 1979-84 agreement, the new package has twice as much grants as loans compared to the 1:1 grant-loan ratio of the old package. The FMS loan, in addition, has such liberal terms that it is a virtual giveaway. The \$300 million FMS credits are payable in 20 years, with a ten-year grace period, at interest rates charged for federal funds borrowings. The loan component of the old package was payable in seven years, with a two-year grace period, at 16 percent interest.

Marcos government spokespersons downplay the compensation issue, focusing instead on claims that the new agreement gives the Philippine government much greater say on how the bases are used. Opposition to the new agreement has also concentrated on the issue of sovereignty.

In a statement released June 2, the day after conclusion of the negotiations, the Anti-Bases Coalition of the Philippines said that:

By requiring the US to give the Philippine government notice only of "the current level of the US forces *permanently stationed* in the Philippines, and their equipment and weapons systems," and of "any *major change*" therein; by denying Philippine officials access to areas "where classified equipment of information is located" except "in accordance with mutually agreed procedure"; and by keeping completely silent on nuclear, biological and chemical weapons, the new agreement allows the United States military complete freedom to bring in, store, and take out nuclear warheads and bombs and chemical and biological weapons without giving notice to, much less getting the consent of, the Philippine government. The coalition also said that:

By extending foreign military sales credits of US\$300 million, "on the basis of a *grace period of ten years* and a *repayment period of 20 years*," the new agreement allows the Marcos regime, known internationally as a persistent violator of human rights, to arm itself to the teeth now and not pay for the armaments. Instead, the next generation will pay for Mr. Marcos' greater power of repression today.

## Kampuchea

**The summer diplomatic season is in full swing** as the annual United Nations debate over Kampuchea approaches. Australia's Labour Prime Minister Bill Hayden traveled to Hanoi in June in an effort to stake out a role as mediator between Vietnam and the Association of Southeast Asian Nations (ASEAN), while rumors and counter-rumors of possible accommodation have circulated throughout the region.

Vietnamese Foreign Minister Nguyen Co Thach told Australian correspondents in Hanoi after meeting with Hayden that the only country in the region which can "play a very positive role for peace and stability in Southeast Asia is Australia under the Labour Party." Thach argued that Australia is in a unique position because it is allied with United States, but the Labour Party has long been friendly to Vietnam. Thach carefully avoided pressing Hayden to fulfill his campaign promise to resume Australian aid to Vietnam—suspended since 1978. Hayden told the press in Bangkok, "Vietnam recognized that if we're to make any worthwhile contribution to this process, then the resumption of aid in circumstances which provoke retributive reaction from ASEAN would destroy our standing."

An ASEAN proposal for a meeting between ASEAN states, Vietnam, and Laos—without Khmer representation—to discuss possible settlements has been floating since March, along with rumors of possible deals which would include Sihanouk in the Heng Samrin government or include Heng Samrin in the insurgent Coalition Government of Democratic Kampuchea. Hayden came away from Hanoi with the impression that Vietnamese officials are interested in the "five plus two" meeting formula, and sources in Hanoi reported in late July that the Heng Samrin government is willing not to be represented at such a meeting.

Public stances have softened only by slight nuances, but diplomats throughout ASEAN are indicating privately that their governments recognize Vietnam's need for a friendly regime in Kampuchea. ASEAN governments are growing increasingly uneasy over China's apparent intention to support a return to power of the Khmer Rouge.

The ASEAN strategy of supporting the anti-Vietnamese Coalition is intended to force the Vietnamese to withdraw from Kampuchea and allow "free elections." Australia's Hayden commented in Vientiane that this strategy was "unproductive" and called for "fresh approaches... without jeopardizing the security or position of any of the countries of Southeast Asia."

## Refugees

**Eight Khmer tomato pickers joined the United Farmworkers Union** after being recruited to replace striking Mexican-American workers at Lagorio Farms near Stockton, California. Indochinese formed the majority among 300 field workers hired by Lagorio's labor contractor after regular tomato pickers struck on July 19, demanding an increase in piecework wages from 35 cents to 50 cents for a five-gallon bucket of tomatoes. Lagorio has paid the same rate for seven years.

Suon Sok, who joined the UFW after organizers were allowed into the fields on July 22, told the *San Francisco Examiner* that he and his wife together earned \$20 for a day's work. A spokesperson for the grower claimed workers earned \$30 to \$100 a day.

The UFW has traditionally been based among Mexican American and Mexican farm laborers. The new recruits are the first among a growing number of Indochinese farm workers in California to join the union. Union officials predicted difficulties in communication, since many UFW members speak only Spanish and many of the Indochinese speak only their own languages. In a context where Hispanic farm workers have been at the bottom of the labor market, the appearance of large numbers of Indochinese who can be recruited to replace them represents a major new development.



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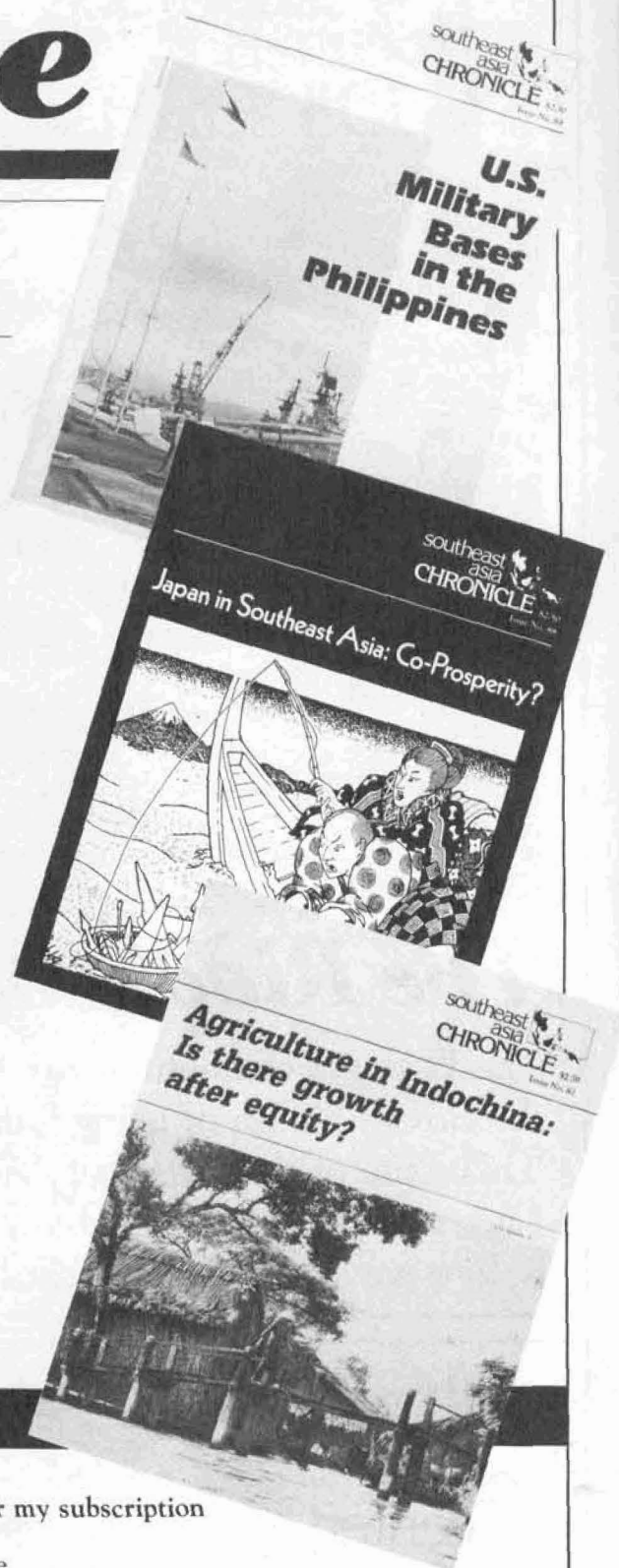
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## *The Riddle of "Yellow Rain"*

The U.S. government accuses the governments of Laos, Vietnam and the Soviet Union of using lethal chemical weapons against insurgents. This issue of the *Southeast Asia Chronicle* introduces evidence from inside Laos and demonstrates that much more investigation will be required before we know the truth about "yellow rain."



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